



**US Army Corps
of Engineers** ®

Norfolk District

Final

Interim Land Use Control Implementation Plan

**Former Nansemond Ordnance Depot
Ordnance and Explosives Sites
Suffolk, Virginia**

Prepared for:

U.S. Army Corps of Engineers-Norfolk District

by:

Science Applications International Corporation
(SAIC)

August 2002



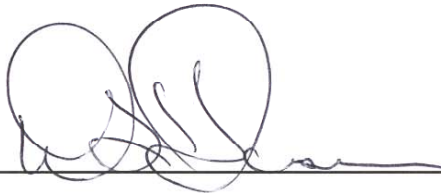
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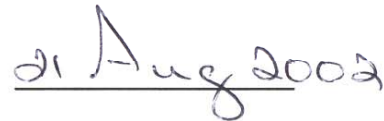
FINAL INTERIM LAND USE CONTROL IMPLEMENTATION PLAN SIGNATURE PAGE

1. **Purpose:** This Interim Land Use Control Implementation Plan (LUCIP) is a tool to support the management of risks driven by military munitions and munitions constituents, more commonly known as Ordnance and Explosives (OE) that were buried or were not made fully safe by prior burning operations. Items found at the Former Nansmond Ordnance Depot (FNOD) vary from several tons of crystalline trinitrotoluene (TNT) found in a washout area to burned-out 75mm shells. The most common items are high-explosive 20mm and 40mm projectiles, some of which are still intact.
2. **Applicability:** This Interim LUCIP is needed to manage the risk while clearance is ongoing and where clearance has not yet started. The plan addresses areas where work has been completed and areas that were not suspect because no ordnance cleanup can be assumed to be perfect, and on a large area such as FNOD, some areas may have been overlooked. Specific areas of applicability may change during the period that this plan is in place. Additions, deletions, and changes in status will be documented by addendum, and appended to this plan as they occur.
3. **References:** Are provided in section entitled "References."
4. **Distribution:** Approved for public release, distribution unlimited.

For the commander

A handwritten signature in blue ink, consisting of a large, stylized 'D' followed by a series of loops and a horizontal line at the end.

David L. Hansen
Colonel, U.S. Army
District Engineer
U.S. Army Engineer District, Norfolk, Virginia

A handwritten date in blue ink, reading '21 Aug 2002'.

Date

EXECUTIVE SUMMARY

WHY

The U.S. Army Corps of Engineers-Norfolk District (USACE-Norfolk) is conducting Ordnance and Explosives (OE) removal actions consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process at the Former Nansemond Ordnance Depot (FNOD). However, it is possible that people may encounter OE in areas where OE removals are complete, ongoing, or are required. Land use controls are being implemented at known and suspected OE sites at FNOD to protect human health and the environment while the OE removal actions are implemented and where risk is known, suspected, or cannot be totally eliminated.

WHERE

Known and suspected OE sites at FNOD include: Area J Lake and Possible Burning Ground, Dominion Lands (Phases I and II), Horseshoe Pond Area, James River Beachfront, Main Burning Ground, Nansemond River Beachfront, and the TNT (Trinitrotoluene) Removal Area. These locations are described and illustrated in Figure 3 of this Final Interim Land Use Control Implementation Plan (LUCIP). Specific areas of applicability may change during the period that this plan is in place. Additions, deletions, and changes in status will be documented by addendum and appended to this plan as they occur.

WHO

USACE, as the executing agent for environmental restoration activities at Formerly Used Defense Sites (FUDS), will be responsible for implementing, maintaining, and monitoring the land use controls for ordnance and explosives at FNOD. USACE may make arrangements with landowners; tenants; government bodies, such as the city of Suffolk; or other stakeholders to help implement, maintain, and monitor land use controls for ordnance and explosives at FNOD. The U.S. Environmental Protection Agency (EPA) Region III and the Virginia Department of Environmental Quality (VDEQ) will oversee these land use controls.

WHAT AND HOW

Land use controls include any type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health and the environment. Land use controls will be implemented as engineering/access controls, institutional controls (proprietary and/or governmental), and educational/notification programs. It must be recognized that no single agency can implement or maintain many of the land use controls, which may be part of this Final Interim LUCIP. It requires coordination and cooperation. In order to ensure that the land use controls are effective, USACE, the city of Suffolk local government, and stakeholders will enter into separate Memoranda of Agreement (MOAs) to implement, maintain, monitor, and enforce land use controls at FNOD. This document identifies the preferred land use control alternatives for each site and includes information regarding who will implement, maintain, monitor, and enforce land use controls at FNOD. USACE sought public comments on the preferred land use control alternatives for each site. A summary of all of the comments and responses is included as an enclosure to this document.

WHEN

This Final Interim LUCIP will remain in effect until all planned OE removal actions have been completed for known and suspected OE sites at FNOD. USACE-Norfolk solicited input from the community on all of the alternatives included in this Final Interim LUCIP. A public comment period for the Draft Interim LUCIP and supporting documents was conducted from March 7, 2002 through April 15, 2002. A public meeting was held on March 7, 2002, at which time oral and written comments were accepted. A summary of all of the comments and responses is included as an enclosure to this document.

INTRODUCTION AND PURPOSE

This Final Interim LUCIP summarizes the preferred **land use control** alternatives that are proposed to reduce risk to human health and the environment from hazards posed by Ordnance and Explosives (OE) at the Former Nansemond Ordnance Depot (FNOD) (the “site”) during OE removal actions. The site location is illustrated in Figure 1 and includes property currently owned by the Continental Bridgeway One Associates, Limited Liability Corporation (LLC); Dominion Lands, Inc.; General Electric (GE) Company; Hampton Roads Sanitation District; SYSCO Food Services of Hampton Roads, Inc.; Virginia State Board of Community Colleges-Tidewater Community College-TCC; and the Virginia Department of Transportation.

Land use controls include any type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health and the environment. The *Transmittal of Interim Final Management Principles for Implementing Response Actions at Closed, Transferring, and Transferred Ranges* (USACE 2000) created the working definition of land use controls used in this document. However, many still accept a general definition of “institutional controls” that includes physical and administrative mechanisms.

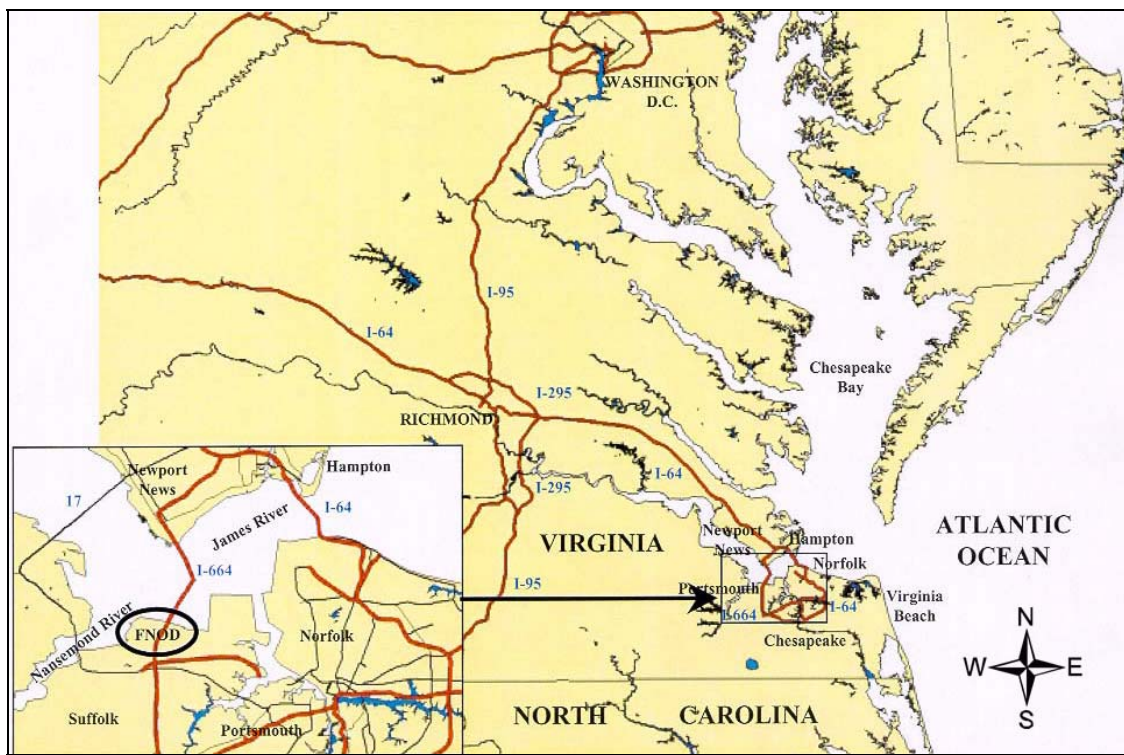


Figure 1. Location Map of the Former Nansemond Ordnance Depot

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) identification number is VAD123933426 for the installation that is designated as the “Former Nansemond Ordnance Depot.” This document is issued by the U.S. Army Corps of Engineers-Norfolk District (USACE-Norfolk), which is the geographic district responsible for oversight of Formerly Used Defense Site (FUDS) activities at FNOD. After public comments received on the draft version of this document were reviewed and considered, USACE-Norfolk, with landowner input, worked with the community and responsible agencies to implement the interim land use controls selected for the FNOD OE sites. This Final Interim LUCIP contains a Responsiveness Summary that responds to all comments received during the public review of the Draft Interim LUCIP.

The objectives of this document are to: (1) discuss relevant background information, (2) discuss land use control alternatives, (3) explain the rationale for the recommendation, (4) facilitate public participation in the decisionmaking process, and (5) document community input in the selection of interim land use controls for OE sites at FNOD.

This Final Interim LUCIP summarizes information that can be found in greater detail in the following supporting documents:

- **Land Use Control Assurance Plan (LUCAP)**—This document (SAIC 2001a) describes the assurances that are needed between USACE-Norfolk and stakeholders to implement, maintain, monitor, and enforce land use controls for OE sites at FNOD.
- **Land Use Control Options Paper (LUCOP)**—This document (SAIC 2001b) identifies and evaluates land use control options, identifies existing controls, evaluates the applicability of controls for known and suspected OE sites at FNOD, and recommends land use controls for implementation.
- **Risk Management Strategy Report for OE Hazards**—This document (SAIC 2001c) presents the OE conceptual site model, risk assessment, and other information needed to support the selection of land use controls and development of risk management strategies.

**Information Repository
Tidewater Community College
Library Information Desk**

7000 College Drive
Portsmouth, VA
Library Hours:

8 a.m. to 9 p.m. Monday through Thursday
8 a.m. to 4:30 p.m. on Friday
8:30 a.m. to 12:30 p.m. on Saturday

The Draft and Final Interim LUCIP and supporting documents will be kept on file for public access at the **information repository**. This information repository is located at **TCC**.

BACKGROUND

The U.S. Army used FNOD from 1917 to 1950 to prepare ammunition and components for storage, ship munitions overseas, inspect and dispose of unserviceable munitions, and recondition ammunition. In 1950, the facility was transferred to the Department of the Navy, and was then known as the Marine Corps Supply Forwarding Annex. In 1960, the property was transferred outside U.S. Department of Defense (DOD) control. Various other land transactions have taken place since the initial release of property.

The Continental Bridgeway One Associates, LLC; Dominion Lands, Inc.; GE; Hampton Roads Sanitation District; SYSCO Food Services of Hampton Roads, Inc.; Virginia State Board of Community Colleges-TCC; and the Virginia Department of Transportation currently own property at FNOD. The property boundaries and zoning are illustrated in Figure 2.

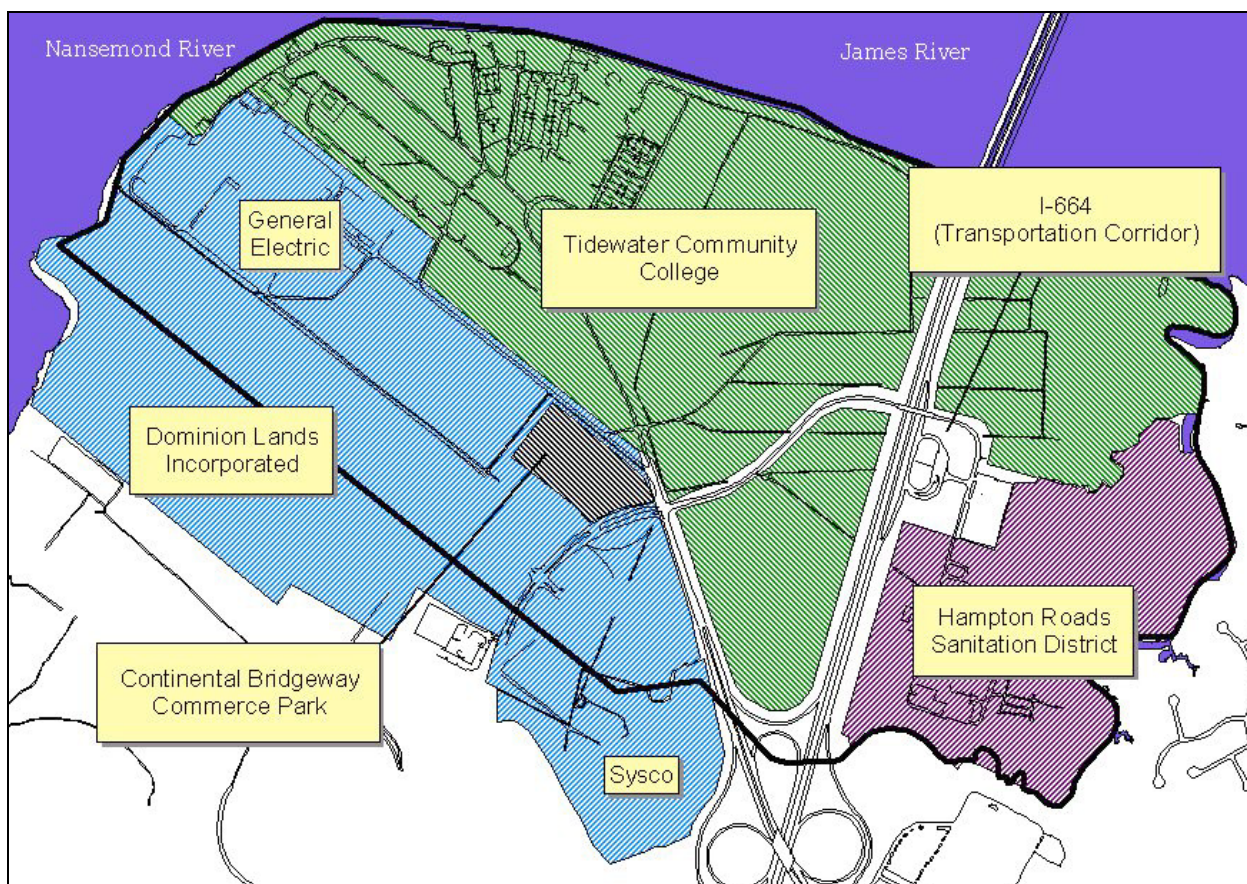


Figure 2. Current Land Owners and Zoning at FNOD

In the spring of 1987, bulk explosives, small-arms munitions, and other ordnance items, both spent and unexploded, were discovered in a 2- to 3-acre area at FNOD. This discovery initiated a series of investigations and removals actions by USACE that continue today. An updated synopsis of investigations and removal actions is provided in the *Risk Management Strategy Report for OE Hazards* (SAIC 2001c).

Several governmental agencies are involved in the investigations, removal actions, and remedial actions at FNOD. Since the Federal Government does not own or control any of the property, FNOD qualifies as a FUDS. Congress, DOD, and the Department of the Army assigned the responsibility for conducting environmental investigations and remediation of FUDS resulting from DOD activity to USACE. USACE-Norfolk is the geographic district responsible for oversight of FUDS activities at FNOD. EPA placed portions of FNOD on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL) with the Federal Government (i.e., DOD) listed as a Potentially Responsible Party (PRP). EPA and VDEQ currently provide regulatory oversight of the investigations, removal actions, and remedial actions at FNOD.

This document describes how land use controls will be implemented over the period of time while OE removal actions are ongoing at FNOD. The needs for long-term land use controls, as well as the potential need to establish long-term agreements, will be evaluated after all planned OE removal actions are complete. Meanwhile, other remedial investigations and response actions will be completed for potential hazardous substances, pollutants, and contaminants. At some time in

the future, when decisions will be made about completing the response process for OE and hazardous substances, pollutants, and contaminants, USACE and EPA will begin a formal site-closeout process for FNOD.

Land Use Controls

Land use controls include any type of physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health and the environment. Land use controls may be used before environmental restoration activities have commenced, while conducting environmental restoration investigations, during implementation of cleanup activities, or after cleanup activities are complete. Land use controls include engineering/access controls, institutional controls, and educational/notification programs.

Engineering and access controls are engineered remedies that contain or reduce contamination. Other controls, such as fences and signs, are used to control access.

Institutional controls are administrative or legal mechanisms for limiting or restricting access to property. Legal mechanisms to implement institutional controls include restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and ordinances, construction permitting, or other existing land use management systems that may be used to ensure compliance with use restrictions.

Educational and notification programs normally are designed as an integral part of the institutional, engineering, and access controls. The programs are intended to inform people about the land use controls, how to identify hazards that might remain at the site, and what to do if hazards are discovered.

Removal and Remedial Actions

In contrast to remedial actions, which are intended to ***permanently*** reduce the dangers associated with actual or threatened releases of hazardous substances that are not immediately life threatening, a removal action is taken to address current or potential releases that require ***prompt*** response. Removal actions must be protective of human health and the environment over the short-term (and ideally the long-term) and can be instituted at any time during the remedial process. Removal actions may be conducted as non-time critical, time critical, or emergency, as follows:

- Non-time critical removals occur at sites where a period of at least 6 months is available for planning.
- Time critical removals are actions that must be taken quickly and have a planning period of less than 6 months.
- Emergency removals occur in situations where exposure to OE yields an imminent and substantial threat to human health or the environment and actions should be taken within hours or days.

Both time critical and non-time critical removals are being conducted for OE at FNOD.

Attachment B (USACE/EPA 1999) of the FNOD Interagency Agreement to Perform a Time Critical Removal Action for Ordnance and Explosives Safety Hazards (USACE/EPA 2000) states, "The Corps shall create and provide institutional controls to the property owners and stakeholders for implementation at the FNOD property as part of ordnance risk management." In addition, these

documents indicated that institutional controls are recommended for all sectors and areas of concern.

Site Characteristics

The OE hazards at FNOD can be grouped into four broad categories based on munitions handling practices during the time when FNOD was active and the OE that was actually handled. This categorization establishes the logic for developing the conceptual site model, assessing explosives safety risk, and developing a risk management strategy. In addition, the status of the removal actions (work has not started, work is underway, or work is completed) is an important factor in developing the conceptual site model. The rationale for categorizing the types of sites and status of removal actions are described below and listed in Table 1.

Specific site characteristics may change during the period that this plan is in place. Additions, deletions, and changes in status will be documented by addendum and appended to this plan as they occur.

Table 1. OE Site Categories at FNOD

Categories	Believe Work is Required	Work is Ongoing	Work Completed
Burials/Trenches	<ul style="list-style-type: none">Area J Lake and Possible Burning Ground	<ul style="list-style-type: none">Main Burning Ground	
Demilitarized OE Scrap Disposal Areas	<ul style="list-style-type: none">Horseshoe Pond Area		<ul style="list-style-type: none">James River BeachfrontNansemond River Beachfront
Kick-out Areas		<ul style="list-style-type: none">Dominion Lands (Phase I-South and Phase II)	<ul style="list-style-type: none">Dominion Lands (Phase I-North)
Washout Areas	<ul style="list-style-type: none">TNT Removal Area		

- **Burials and Trenches**—This type of site is characterized by locations where live ordnance was placed in pits or trenches for demilitarization or making ordnance safe. The pits and trenches were then backfilled with soil to cover munitions that did not detonate or were partially detonated, and ordnance-related scrap (shrapnel and fragments). Because of strong magnetic signatures created by dense areas of munitions and scrap, these areas are easily identified through the use of geophysical instruments, such as magnetometers. In addition, aerial photographic analysis and interviews have been used to identify locations where demilitarization activities were thought to have occurred. The Area J Lake and Possible Burning Ground and Main Burning Ground are burial and trench sites at FNOD.
- **Demilitarized OE Scrap Disposal Areas**—These areas can be found at FNOD where large amounts of debris were discarded in erosion channels on beaches. Although OE scrap has been recovered from source areas at the James River Beachfront and Nansemond River Beachfront sites, no live ordnance has been recovered from any debris. These source areas typically are very large and are easy to locate. However, locating OE is a challenge because there is a great deal of material, all of which needs to be inspected by hand. In addition to the James and Nansemond River Beachfront sites mentioned above, the Horseshoe Pond area was a demilitarized OE scrap disposal area.
- **“Kick-Out Areas”**—These sites result from activities that occurred at burial and trench sites. During the fires from demilitarization, forces from explosions in the pits or trenches carried

away small items, both live (i.e., still containing some explosive or propellant material) and inert. These items, commonly referred to as “kick-out” material, include small projectiles (e.g., 20mm), grenades, and OE scrap (e.g., fuzes). Because of the decades of exposure to the elements and distortion created by the heat of the demilitarization operations, these items are difficult to recognize. However, with the aid of geophysical instruments, trained unexploded ordnance (UXO) technicians can locate and recognize OE. Dominion Lands Phases I and II are considered kick-out areas.

- **Washout Areas**—The only known area with residue from washout operations is the TNT Removal Area. Washout operations involved the use of steam cleaners or high-pressure washers to salvage ordnance parts from disassembled munitions or to clean out rail cars that were caked with explosives residuum from transporting bulk explosives. The crystalline material is easily recognized visually, but difficult to locate by instrument. If munitions or parts of munitions were mixed in during burial, geophysical instruments could be used to locate the burials. As described in the Archives Search Report (USACE 1993), a large number of munitions and munitions parts also were buried in the general vicinity of the TNT Removal Area.

The Former Athletic Fields (North and South), Former Building E-410, Former Buildings L-11 and L-12, Impregnite Kit Area, and Renovation Plant Area were originally suspected OE sites that have since been surveyed and no further response for ordnance and explosives was determined to be necessary. In some cases, digital geophysical mapping was conducted followed by intrusive investigations of anomalies (i.e., excavation of soil to expose potentially explosive items). No OE material and very little OE-related material was recovered from the intrusive investigations. Although these sites appear on the conceptual site model, they are not evaluated further in this document.

Over the past several years, hundreds of live ordnance items, OE-related scrap, and non-OE scrap have been recovered from various depths during removals conducted at FNOD. Table 2 summarizes the OE that has been found at the Main Burning Ground, the Main Burning Ground Kick-Out Area (Dominion Lands Phases I and II), and the TNT Disposal Area as of October 18, 2001.

An understanding of current property ownership and land use at FNOD is vital to assessing risk and developing a risk management strategy. Property owners determine actual land use within zoning classifications and must cooperate in developing land use controls on property they own. The current landowners and sizes of properties are listed in Table 3.

While zoning describes important information about FNOD, the authorized types of land use are more important to assessing risk and developing a risk management strategy. The city of Suffolk Comprehensive Plan specifies zoning and land uses (*Unified Development Ordinance, Article 4, § 31-403 [Relation of Zoning Districts to Comprehensive Plan and Purpose Statements]* and *§ 31-406 [Use Regulations]*). The *Unified Development Ordinance* also classifies land uses as “permitted,” “conditional” (i.e., requires approval of City Council), and “prohibited” for each zoning (*Unified Development Ordinance, § 31-406, Table 406-1*). The following bullets summarize the purposes of different types of zoning at FNOD and the status of land uses for each.

- **Office/Institutional (O-I)**—O-I zoning includes business and commercial developments with urban transportation access. O-I includes 46 conditional (e.g., parks/open space), 47 permitted (e.g., day care facilities and nursery schools), and 143 prohibited (e.g., single-family dwellings) land uses.

Table 2. Summary of OE Found at FNOD *

Item	Number of Items Found	Depth (feet below ground surface [BGS])		Mass (pounds)
		Minimum	Maximum	
<i>Projectiles</i>				
20mm	108	1	24	—
37mm (cases)	2	1	6	—
40mm	55	1	24	—
75mm	3	8	18	—
<i>Grenades</i>	3	4	18	—
<i>Miscellaneous</i>				
Bases, boosters, fuzes, primers	90	0	18	—
Unspecified OE items	239	—	—	—
OE scrap	—	—	—	14,419
Non-OE scrap	—	—	—	139,509

* Summary current as of October 18, 2001

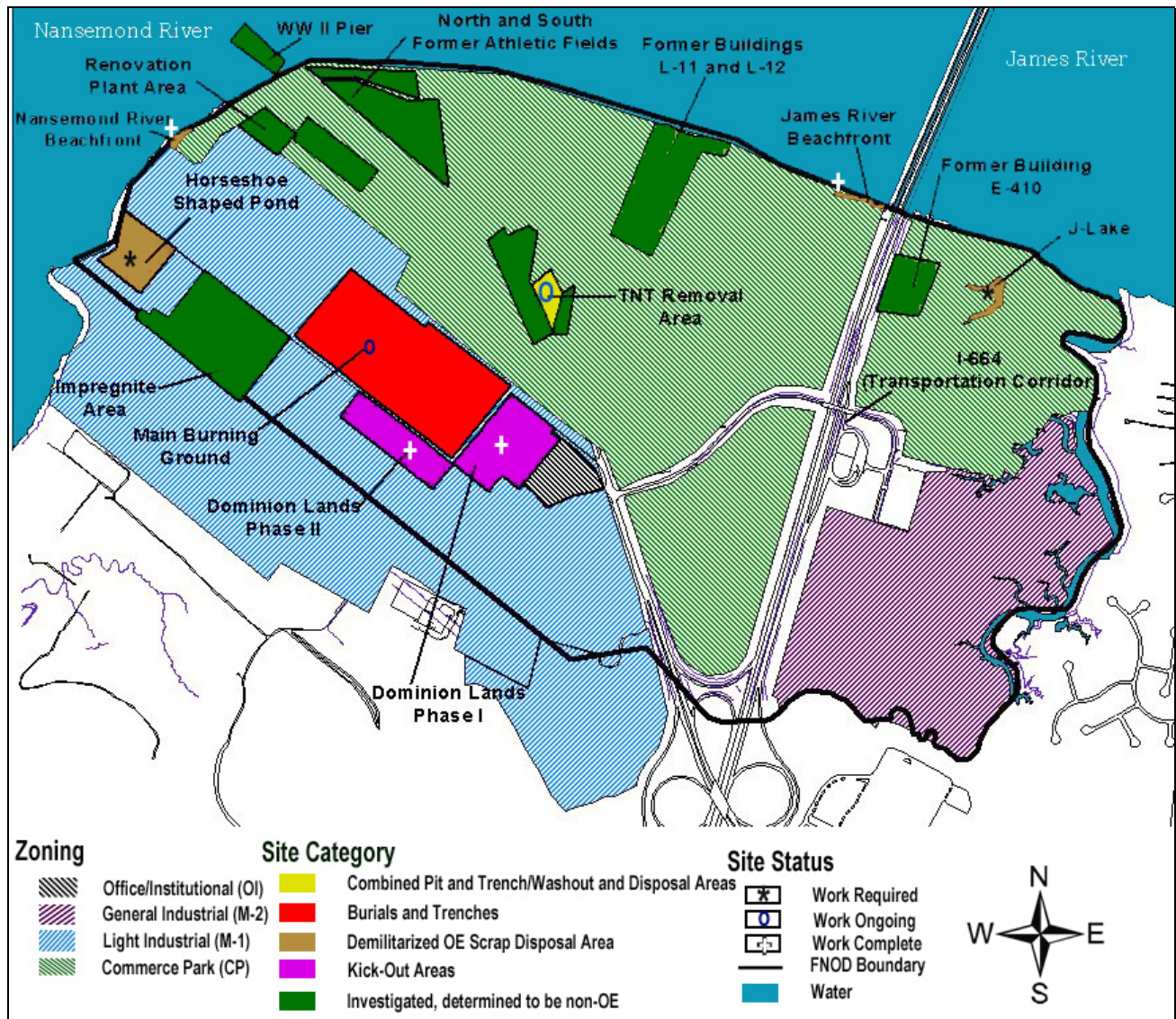
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Table 3. Summary of Land Ownership at FNOD

Landowner	Approximate Property size (acres)
Continental Bridgeway One Associates, LLC	13
Dominion Lands, Inc.	229
GE	102
Hampton Roads Sanitation District	125
SYSCO Food Services of Hampton Roads, Inc.	41
Virginia State Board of Community Colleges (TCC, Portsmouth Campus)	518
Virginia Department of Transportation	107

- **Commerce Park (CP)**—CP zoning includes offices, office warehouses, research and development facilities “in a controlled park-like setting.” CP includes 33 conditional (e.g. hotels and motels), 27 permitted (e.g., day care facilities and nursery schools), and 175 prohibited (e.g., single-family dwellings) land uses.
- **Light Industrial (M-1)**—M-1 zoning includes a mixture of light manufacturing or research and development-related uses and limited retail and service uses. These zoning categories are designed with screening and buffering to be compatible with adjoining uses. M-1 includes 67 conditional (e.g., day care facilities and nursery schools), 41 permitted (e.g., natural area preserve), and 129 prohibited (e.g., single-family dwellings) land uses.
- **General Industrial (M-2)**: Areas of heavy and concentrated fabrication, manufacturing, and industrial uses, which are suitable based upon adjacent land uses, access to transportation, and the availability of public services and facilities. M-2 includes 61 conditional (e.g., detention center), 59 permitted (e.g., natural area preserve), and 117 prohibited (e.g., single-family dwellings) land uses.

The conceptual site model (Figure 3) illustrates the areas of interest with fill colors indicating if removal actions have not been started, are underway, or have been completed and border colors indicating whether the site is a burial/trench, demilitarized OE scrap area, kick-out area, washout area, or non-OE area. In addition, zoning types and boundaries are illustrated with colored patterns identified in the figure legend.



SCOPE AND ROLE OF THE INTERIM LAND USE CONTROL IMPLEMENTATION PLAN

At FNOD, removal actions have been conducted to clear OE from several sites, several others are planned, and others are currently underway. Additional CERCLA remedial actions are now in the process of being planned and implemented to characterize and address hazardous substances, pollutants, and contaminants. Attachment B (USACE/EPA 1999) of the FNOD Interagency Agreement to Perform a Time Critical Removal Action for Ordnance and Explosives Safety Hazards

(USACE/EPA 2000) states, “The Corps shall create and provide institutional controls to the property owners and stakeholders for implementation at the FNOD property as part of ordnance risk management.” In addition, these documents indicated that institutional controls are recommended for all sectors and areas of concern.

At FNOD, land use control options chosen to be used at FNOD are set forth in this Final Interim LUCIP for public comment. After public comments received on the Draft Interim LUCIP were reviewed and considered, USACE-Norfolk, with stakeholder input, selected the land use controls for this site and present the selection in this Final Interim LUCIP. This Final Interim LUCIP contains a Responsiveness Summary that responds to all comments received during the public review.

Land use controls addressed by this Final Interim LUCIP are those necessary to be implemented until removal activities at all known and suspected OE sites are concluded. At that time, residual risk posed by potentially remaining OE will be assessed at FNOD to determine the need for further land use controls over the long-term.

SUMMARY OF SITE RISKS

The OE risk assessment for FNOD is based on existing information regarding the nature and extent of OE and will be used to support the risk management strategy. OE risk is generally grouped into two categories: (1) explosives safety risks associated with potential detonation of OE and (2) chemical risks associated with the toxicological aspects of OE. This section focuses on explosives safety risk, which is evaluated for eight sites listed in Table 1. This section summarizes the assessment of explosives safety risk that is described in greater detail in the *Risk Management Strategy Report for OE Hazards* (SAIC 2001c).

The utility of knowing precise levels of risk is questionable when the probability of encountering OE is low and the consequences are potentially severe. For this reason, explosives safety risk should be assessed qualitatively. Furthermore, the assessment should focus on determining if OE is present and, if so, determine if human contact is possible. The following sections combine information about known and suspected OE locations with information about human activities to develop an understanding of OE risk at FNOD.

The U.S. Army Engineering and Support Center, Huntsville has developed interim guidance for assessing explosives safety risks to support the detailed analysis of response alternatives in OE Engineering Evaluations/Cost Analyses (EE/CAs) (USACE 2001). This guidance implements the OE Risk Impact Assessment (OERIA) methodology and evaluates risk with respect to three basic risk factors (i.e., site characteristics, human factors, and OE factors) illustrated in Figure 4. OERIA can be used as the model for this assessment.



Figure 4. Basic Elements of OERIA

Table 4 summarizes the baseline or current condition risks in terms of whether work is required, ongoing, or complete. Table 5 presents the impacts on OE safety risk that could be realized by implementing different land use control alternatives relative to the baselines established on Table 4.

Table 4. Summary of Factors Under Current Conditions (Baseline Scenario) at FNOD

Site	Type ^a	Sensitivity ^b	Density ^c	Depth ^d	Accessibility ^e	Stability ^f	Activities ^g	Population ^h
Work Is Required								
Area J Lake and Possible Burning Ground	Cat. 3 ^c	Cat. 3 ^c	High ^c	Surface to 8 feet BGS ^c	Limited	Stable	Significant	<1/day
Horseshoe Pond Area	Unknown	Unknown	Unknown	Unknown	Limited	Stable	Unknown	<1/day
TNT Removal Area	Cat. 3	Cat. 3	Extremely low	Surface to 8 feet BGS	No restrictions	Stable	Moderate	>20/day
Work Is Ongoing								
Main Burning Ground	Cat. 3	Cat. 3	High	Surface to 8 feet BGS	No restrictions	Stable	Significant	~20/day
Dominion Lands (Phase II)	Cat. 3	Cat. 3	Low	Surface to several inches BGS	Limited	Stable	Significant	~20/day
Work Completed								
Dominion Lands (Phase I)	Cat. 3	Cat. 3	Low or extremely low ^a	Surface to several inches BGS	No restrictions	Stable	Moderate	>20/day
James River Beachfront	Cat. 0	Cat. 0	Extremely low or nonexistent	Greater than 10 feet BGS	Limited	Stable	Moderate	<1/day
Nansemond River Beachfront	Cat. 0	Cat. 0	Extremely low or nonexistent	Greater than 10 feet BGS	Limited	Stable	Moderate	<1/day

^a Ordnance types, such as projectiles and grenades, that are listed under category 3 represent OE that will kill an individual if detonated by an individual's activities, and category 0 represents inert OE or scrap that will cause no injury because the item will not explode.

^b Ordnance sensitivity is used to describe the likelihood of an ordnance item exploding when handled. Items listed under category 3 represent OE that are very sensitive, and category 0 represents inert OE or scrap that will cause no injury when handled.

^c Density refers to the number of ordnance items that can be found in a given area, such as number of ordnance items per acre. Assumption based on OE recovered from another similar type site at FNOD.

^d This variable describes the measured or assumed distance from the ground surface to the uppermost point on an ordnance item located underground (BGS= below ground surface).

^e Accessibility describes the potential for humans to encounter ordnance.

^f Stability describes the potential for natural forces to make ordnance more accessible in the future through events such as frost-heave or hurricanes.

^g The category "significant" is highest, followed by "moderate" and "low" categories.

^h Population describes the number of people per day who are believed to visit the area where the ordnance is located.

The analysis considers each land use control alternative with respect to each OE factor in OERIA and determines “no impact” or ranks alternatives relatively from most to least effective in reducing risk using a scale range from “Good,” to “Better,” and “Best.” The analysis presented in Table 5 does not reflect removals that already are planned for sites where work is required or for parts of sites that have been completed; these analyses will occur after all OE removal actions have been completed at FNOD. In addition, the baseline in Table 5 represents a worst-case combination of factors spanning all of the sites where work is required, ongoing, or complete.

Table 5. OE Risk Impact Analysis of Land Use Control Alternatives

Site	OE Factors				Site Characteristics		Human Factors		Overall Rank
	Type	Sensitivity	Density	Depth	Accessibility	Stability	Activities	Population	
Engineering/Access Controls									
Construction support	No impact	No impact	No impact	No impact	Good	No impact	Best	Good	Good
Fences ^d	No impact	No impact	No impact	No impact	Best	No impact	Better	Best	Best
Signage ^d	No impact	No impact	No impact	No impact	Best	No impact	Better	Best	Best
Institutional Controls									
Zoning and permits	No impact	No impact	No impact	No impact	Good	No impact	Best	Good	Good
Advisories and restrictions	No impact	No impact	No impact	No impact	Good	No impact	Best	Good	Good
Educational/Notification Programs									
Regular mailings	No impact	No impact	No impact	No impact	Better	No impact	Good	Better	Better
Public information meetings	No impact	No impact	No impact	No impact	Better	No impact	Good	Better	Better
City and program participation	No impact	No impact	No impact	No impact	Better	No impact	Good	Better	Better
Miss Utility	No impact	No impact	No impact	No impact	Better	No impact	Good	Better	Better
Fact sheets	No impact	No impact	No impact	No impact	Better	No impact	Good	Better	Better
Current conditions ^a	Cat. 3 ^b	Cat. 3 ^c	Dense	Surface	No restrictions	Unstable	Significant	>20/day	Not applicable

^a The current conditions represent a worst-case composite across all sites.

^b Ordnance sensitivity listed under category 3 represents OE that is very sensitive and category 0 represents inert OE or scrap that will cause no injury.

^c Assumption based on OE recovered from another similar type site at FNOD.

^d Effectiveness of fences and signs is assumed to be dependent on the construction, design, and maintenance.

This combination was selected to demonstrate the largest impact on risk, which is believed to be the most useful for evaluating land use control alternatives. The following bullets summarize the rationale used to analyze the land use control alternatives presented in Table 5:

- **OE Factors**—As would be expected, land use controls show more significant impacts on site characteristics and human factors than on OE factors. For example, a fence might be effective in limiting or restricting accessibility, but it will not change the type or sensitivity of OE. Consequently, Table 5 does not reflect any impacts on OE factors from implementing any land use control alternatives.
- **Accessibility**—Fences and signs are considered the control to mitigate risk because they are the most visible deterrent. Education and notification can be effective means of restricting access, but the effectiveness is limited to participants, the composition of which will change with time. Institutional controls and construction support are both effective, but only by law-abiding participants.
- **Stability**—This OERIA factor does not appear to be important to this analysis at FNOD because all sites are stable.
- **Activities**—Construction support and institutional controls were considered the best alternatives to impact risk because of the preventive nature of these controls. Both are intended to preclude activities by reducing the likelihood of individuals encountering OE. Fences and signs might not preclude some activities, but would signal the presence of hazards associated with potentially moderate activities. Education and notification are believed to be effective, but only for the receptive and compliant audience.
- **Population**—Fences and signs are considered the best controls in reducing the frequency of individuals at FNOD in contacting OE. Education and notification would serve to augment the effectiveness of the fences and signs while people are at FNOD. Institutional controls seemed to be the least likely to impact risk to the population that already visits FNOD.

REMOVAL ACTION OBJECTIVES

For reasons explained below, land use controls are necessary while OE removal actions are being conducted at FNOD. The specific controls may differ depending on whether work in the particular area in question has started, is ongoing, or is complete.

The goal of implementing land use controls is to protect human health and the environment. The following removal action objectives are designed to help meet this basic goal for areas where OE may be present:

- Notify people who may disturb the surface of the land or conduct excavation activities of the potential presence of residual OE before any disturbance occurs
- Prohibit unauthorized subsurface excavation
- Prohibit any change in land use (particularly to residential use) until the current owner/operator or other person using the land is adequately informed of the potential presence of OE
- Ensure occupational and public safety and environmental integrity by providing an acceptable contingency plan in the event that residual ordnance is discovered. The contingency plan should ensure that proper OE clearance procedures are followed and provide that USACE will assist with appropriate expertise.

For OE removal actions at FNOD, the focus for implementing land use controls is on explosives safety risk. Removal actions at FNOD have been or will be designed to locate and remove OE that can be located with current technology. Land use controls are needed while removal actions are conducted at known and suspected OE sites because of the following conditions:

- Before OE removals are conducted, people are potentially at risk where notice and/or access restrictions do not exist.
- The act of removing OE carries with it risks associated with exposure to the OE, including explosives safety risk associated with the energetic material and health risks from the hazardous substances that may be present.
- OE may remain in areas or at depths that are not suspected or identified.
- Detection and removal methods are not always 100 percent effective. Although USACE and contractors follow a rigorous quality assurance program, some ordnance may remain in areas or at depths that already have been subjected to removal actions.

SUMMARY OF ALTERNATIVES

Land use controls that are under consideration for potential use at FNOD during the OE removal actions are presented below. Additional information about the alternatives described below is presented in the LUCOP (SAIC 2001b).

Engineering and Access Controls

Engineering controls are the primary physical means of mitigating risk at FNOD. Engineering controls are engineered remedies that actively contain, reduce, or eliminate contamination at a property. Access controls are used to control exposure. Examples of engineering and access controls include:

- Construction support
- Fences
- Signage.

Construction support is providing assistance in avoiding ordnance and explosives risks in areas where a clearance has not been started or has not been completed.

In some cases, administrative mechanisms are needed to ensure that engineering controls are effective. For example, engineered remedies need to be maintained, repaired, or replaced, as necessary. Since several OE sites are privately owned (see Table 3), access rights may be needed to construct, maintain, repair, monitor, or perform other activities that might be required for land use controls.

Institutional Controls

Institutional controls are administrative and legal mechanisms for limiting or restricting access to property and are classified generally as proprietary controls or governmental controls. Proprietary controls are those established by a private property owner, and governmental controls are those established by local, state, or Federal Government.

Proprietary Controls—Proprietary institutional controls are those established by a private property owner. The most common kinds of proprietary controls are easements, covenants, and reversionary interests.

Typically, the only person who can impose an easement, covenant, or reversionary interest on a piece of land is the owner of that land. In order to implement a proprietary control, then, a private landowner must be willing to burden his land with the control. In addition, proprietary controls must be implemented in accordance with state law. However, a proprietary control can be implemented without Federal, state, or local governmental involvement.

Easement—An easement is a right to use the land of another. Several different kinds of easements exist. Some of these easements are presented below.

- **Easement In Gross**—An easement in gross is created when the owner of the land grants rights to use or restrict use of the land to an individual. An easement in gross involves only one piece of land, the land that is burdened. The easement granted is usually personal, without being attached to land owned or used by the holder (grantee), and it usually ends with the death of the grantee. The holder of an easement in gross usually cannot pass the interest by inheritance nor can the holder transfer the interest. However, the owner of the burdened estate has the discretion to either pass the servitude by inheritance or to transfer the servitude.
- **Affirmative Easement**—An affirmative easement allows the holder to use another's land in a way that would be unlawful without the easement, such as providing a right-of-way. Most easements are affirmative.
- **Negative Easement**—A negative easement prohibits a lawful use of the land. The holder of a negative easement may prohibit the servient land from doing something that it is otherwise privileged to do. Many environmental easements are negative.

Covenant—A covenant is a promise or agreement of two or more parties where one of the parties pledges himself to the other that something will or will not be done.

- **Restrictive Covenant**—A restrictive covenant is a provision in a deed or contract of sale that limits the use of the property and prohibits certain uses. A restrictive covenant is said to 'run with the land,' which means that either the liability to perform it or the right to take advantage of it passes to the person or entity to whom the land is transferred from the party who originally entered into the covenant.
- **Equitable Servitude**—A restrictive covenant that can be enforced by requiring specific performance of the terms of the promise in a court of equity is also known as either an equitable easement, if a right is granted, or an equitable servitude, where a burden is imposed. A court will enforce a covenant only where the intent of the parties is clear and the restriction is reasonable.

Statutory Easements—Some states have created statutory use restriction easements that override common law doctrines on easements. Two such programs have been created in Virginia: the **Conservation Easement Law** and the **Open-Space Land Act**.

- Under the **Conservation Easement Law**, an easement appurtenant or in gross can be granted for the primary purpose of any of the following: (1) retaining or protecting the natural or open-space values of real property; (2) ensuring the availability of real property for agricultural, forestal, recreational, or open-space use; (3) protecting natural resources; (4)

maintaining or enhancing air or water quality; or (5) preserving the historic, architectural or archaeological aspects of real property. The holder of the easement may be a charitable corporation, charitable association, charitable trust, or governmental body, as defined in Virginia law.

- Under the **Open-Space Land Act**, a public body can acquire an easement appurtenant or in gross for the purpose of preserving open-space land. A public body is: any state agency having authority to acquire land for a public use, or any county or municipality, any park authority, any public recreational facilities authority, any soil and water conservation district, certain community development authorities, or the Virginia Recreational Facilities Authority. “Open-space land” is any land provided or preserved for park or recreational purposes, conservation of land or other natural resources, or historic or scenic purposes. “Open-space land” is also land that is provided or preserved for assisting in the shaping of the character, direction, and timing of community development. “Open-space land” includes wetlands.

Deed Restriction—A deed restriction often is mentioned in regulatory programs as an institutional control. The term “deed restriction” does not have a particular meaning in property law. Rather, a deed restriction can refer to any of a number of proprietary controls or other notices that are recorded on the deed. These include easements, covenants that run with the land, reversionary interests, and reverter clauses. These also include notices on deeds that are required by some laws and rules for property where hazardous substances have been managed.

Governmental Controls—Institutional controls can be established by Federal, state, and local governmental authorities as well as by private individuals and landowners. State and local governments traditionally have carried out this function over lands within their jurisdictions through the use of their police power.

Zoning and Planning—Planning and zoning are the most common forms of local land use control. With this type of institutional control, use restrictions are imposed through the local zoning or land use planning authority. Examples of use restrictions are those that limit access and prohibit disturbance of the remedy. There is no Federal involvement in zoning, nor is state-owned or federally owned land subject to local zoning ordinances. Much of the property at FNOD is currently state-owned.

The city of Suffolk enacted a “Unified Development Ordinance” effective September 1999, which contains zoning requirements and subdivision regulations for all property within the jurisdiction of the city. Emphasis of the ordinance is on “smart growth management strategy.”

Under the terms of the Unified Development Ordinance, the city of Suffolk requires that:

No person shall construct any structure, use any land or change the use of any structure or land until a zoning permit has been obtained from the zoning Administrator and a building permit has been obtained from the Building Official in the Department of Neighborhood Development Services.

Thus, no development can be performed without obtaining all applicable permits for the development along with any required plan approvals.

Costs of implementing local governmental zoning controls would be low because the programs are already in place.

Regulatory Permit Programs—Permit programs exist at the Federal, state, and local levels. Often, the Federal and state governments work together in drafting a permit issued to a facility. Examples of permits that can be of use in implementing institutional controls include a water use authorization, restrictions on use of groundwater implemented through a state permitting system, or a local building permit requirement.

Advisories and Restrictions—Often, a state authority or a local authority such as a municipal health department will issue an advisory on water and well use.

Different forms of advisories include newspaper notices, publications in specialty publications, signs, mailings to residents, and announcements on television and radio. Use of signs requires frequent monitoring by the responsible party to ensure that the sign has not been removed and is still in readable condition.

Statutory or Rule Requirements—Some statutes or rules establish a requirement that amounts to an institutional control, such as the 5-year review requirement of CERCLA or the deed notice requirements of the RCRA closure rules.


Educational/Notification Programs

Educational programs are intended to inform people about land use controls at FNOD, how to identify hazards that might remain at the site, and what to do if hazards are discovered. Notification and education will include ensuring that land users are aware of the steps to take once OE is encountered, as well as steps to take during routine activities to minimize the chance of having an accident. Examples of education/notification programs include:

- **Regular Mailings**—Publish a notification pamphlet and distribute regularly to owners/occupants of affected properties until OE removals are complete.
- **Public Information Meetings**—Educate the public about the dangers of the OE that is potentially present at FNOD.
- **City/Program Participation**—Broadcast radio public service announcements and publish newspaper advertisements and articles to inform the entire community several times a year about Restoration Advisory Board (RAB) meetings or other public events and about work progress.
- **Emergency Services/Miss Utility Support**—Use existing notification systems for different communication needs (e.g., 911 to notify USACE or local explosives ordnance disposal [EOD] unit if OE is discovered; if possible, use Miss Utility to warn excavators of potential presence of OE).
- **Fact Sheets**—Post fact sheets in buildings on FNOD properties and distribute at public information forums.

Educational efforts under consideration include regular mailings, public information meetings, newspaper advertisements, pamphlets published by USACE describing the potential OE that could be encountered, and training programs for specified personnel.

Agency Review and Agreement of Land Use Changes—This institutional control could be implemented by state agencies. The basic concept would be to establish a state-agency-to-state-agency agreement for review of projects. For example, VDEQ could have an agreement with the Virginia Department of Transportation that VDEQ can review proposed projects located in



the affected area. In the agreement, it would be established that VDEQ would review and provide formal comment on the project. This kind of arrangement could be made among local government agencies as well, or between a local government entity and a state agency.

Virginia already has legislation in place that allows VDEQ to comment on projects conducted by the Virginia Department of Transportation, which involve highway construction, at Virginia Code 10.1-1188.

Consultation Process Among Local Governments or Between Local, State, and Federal Agencies—A consultation requirement is relatively easy to implement, and could be an effective means for putting USACE-Norfolk on notice that a landowner intends to change the use of a parcel on which land use restrictions have been placed.

Records—Another notification method under consideration is to use a records system or share a records system. This kind of institutional control would consist of a database of all sites where the potential presence of OE is suspected, as well as sites that have been cleaned up, along with the use restrictions attached. The database could be distributed to the city, which can integrate it with utility maps, to the zoning and building permit offices, to the municipal and state health departments, to property records offices, perhaps to lenders and insurance providers, to VDEQ, and maintained by the Federal Government.

A geographic information system (GIS) system for the FNOD already is being developed by the city of Suffolk Planning and Zoning Division, which regulates planning and land use. The GIS system will feed into the 911 emergency notification system. USACE intends to enter into an agreement with this division to ensure and reinforce enforcement efforts.

Monitoring—A monitoring program could be established by the city of Suffolk or another interested party to ensure that the land is not disturbed or any construction performed without appropriate knowledge of the potential dangers and what to do if OE is discovered.

Monitoring requirements will be written into agreements for implementing and enforcing institutional controls. Some officials in the city of Suffolk have indicated willingness to enter into an agreement for implementing and enforcing certain institutional controls at the site, including visual monitoring. However, the City Council would have to agree to enter into agreements and the City Manager would need to sign any such agreements.

In addition, the Federal Government has an ongoing monitoring requirement. Under CERCLA Section 121(c), a 5-year review of a remedial action is required whenever any hazardous substances, pollutants, or contaminants are left at the site. USACE is required to conduct the 5-year review at FNOD. The review is conducted to ensure that human health and the environment are being protected by the remedial action. This purpose includes assessing whether land use controls are functioning as expected.

Notice—Notification of potential hazards can be accomplished in many ways. Landowner notification and local utilities notification are two methods that are likely to be used at FNOD during removal actions. Another notification tool is the GIS-based records system.

One method already has been set up with the city of Suffolk, Emergency Services Department. This Department has entered into a contingency plan with USACE that directs calls to USACE or local EOD units when called onsite for incidents at FNOD.

In addition, Virginia has the Miss Utility program in place to inform persons who will conduct excavation activities of the presence of underground utility. Through this program, notice of potential contamination, information about how to protect employees while conducting excavation activities, and what to do if ordnance is encountered could be provided to persons who plan to conduct excavation activities if the Virginia State Corporation Commission is able to expand the system as such. One possible drawback of this approach is that the legislation for Miss Utility may have to be amended to authorize the government to conduct these activities under the Miss Utility program. If the legislation were amended, the Miss Utility program notice would be readily enforceable.

EVALUATION OF ALTERNATIVES

Response alternatives will be evaluated in this document against nine criteria: overall protection of the environment; compliance with applicable or relevant and appropriate requirements (ARARs); long-term effectiveness and permanence; reduction of toxicity, mobility, and volume of contaminants through treatment; short-term effectiveness; implementability; cost; state/support agency acceptance; and community acceptance.


Of these criteria, the most important for the land use controls at FNOD OE sites (i.e., for the duration of the removal actions) are short-term effectiveness, implementability, cost, state acceptance, and community acceptance. State and community acceptance are addressed following public review. The long-term effectiveness and permanence criterion will increase in importance after all planned OE removals are completed at FNOD. The following bullets summarize the relevance to FNOD land use controls:

- **Short-term effectiveness** is evaluated by how the component of the alternative will protect the community while OE response actions are being conducted at FNOD. Workers are included in the population that may be affected by short-term exposure.
- **Implementability** addresses the technical and administrative feasibility of implementing an alternative and the availability of various services required during its implementation.
- **Cost** is used as a comparative tool under the nine criteria evaluation. The respective alternatives are compared with respect to cost; however, no conclusion is drawn as to the cost-effectiveness of the alternative. Cost-effectiveness is determined in the final remedy selection phase.
- **State acceptance** reflects the CERCLA requirement to provide for substantial and meaningful state involvement.
- **Community acceptance** refers to all interested parties. Many institutional controls cannot be implemented without the express consent, cooperation, and action of the local community.

This section profiles the relative performance of each alternative against the CERCLA criteria, noting how it compares to the other options under consideration. The “Detailed Analysis of Potential Land Use Controls” is presented in the LUCOP (SAIC 2001b).

Short-term Effectiveness

Some of the potential land use controls would have a high degree of short-term effectiveness at FNOD as long as they were effectively implemented. Notification and educational requirements fall within this category, as do monitoring controls.



Construction support ranges from conducting safety briefings, to providing a two-person UXO team on standby in case construction contractors encounter OE, to UXO teams required to conduct subsurface UXO clearance for the known construction footprint prior to initiating intrusive construction activities. Since USACE is planning to conduct OE removals at all known and suspected OE sites and will be onsite for the next several years, the latter two scenarios (i.e., standby teams and UXO clearance) are effectively already being implemented. Providing safety briefings to construction contractors is considered most effective while USACE is onsite because USACE can confirm that safety procedures are being followed and, if necessary, increase the level of support.

Fences and signs often are ignored and can be ineffective in terms of restricting access without the cooperation of the landowner, local officials, and community in enforcing/obeying trespassing laws. In addition, they lose their effectiveness if not properly maintained or monitored. However, since they will be needed only for a short period of time, maintenance is not likely to impact the effectiveness, assuming the fences and signs are installed properly. The frequent presence of USACE personnel and contractors at FNOD increases the effectiveness.

Based on the feedback obtained from meetings and questionnaire responses provided by stakeholders, proprietary controls will not be considered in this evaluation because landowners do not support these types of controls. These controls can be implemented only with the consent, cooperation, and action of the landowners.

Zoning as an institutional control can rely on programs already in place that can be supplemented or extended slightly to provide notice, education, and enforcement requirements for land use restrictions and changes at FNOD for the duration of the OE removal actions. This option would be very effective in the short-term, but as zoning can change, long-term effectiveness and permanence is not as favorable.


At this time, regulatory permit programs do not appear to be needed to implement land use controls for FNOD OE sites. This analysis will be conducted if regulatory permits are needed at some time in the future.

Advisories are effective in the short-term if they reach the intended audience, and if the audience understands the message and is willing to comply with the advisory.

Statutory requirements—specifically, CERCLA’s requirement to review the protectiveness of remedial actions every 5 years—would not help ensure the effectiveness of land use controls over the short period (4 years or so) that USACE is considering here. In addition, this requirement, strictly speaking, does not apply to short-term removal actions such as those being considered here.

Educating and notifying the public about hazards associated with the potential OE present at FNOD and methods to avoid the hazards could provide an effective measure for protecting the public from those OE hazards as long as the program is maintained.

Agency review and agreement of land use changes has a great potential to be effective on a short-term basis while the OE removals are being implemented, as does agency consultation arrangements. This control also could be effective in the long-term if the agreements are maintained.



A consultation process among local governments or between local, state, and Federal agencies is already in effect between USACE and local emergency services. This option has a high degree of short-term effectiveness and it could be effective over a period of time if the process is implemented as planned.

Records of land use restrictions or of areas where potential OE exists would be very effective in the short-term and the long-term. If the records were in a GIS system that was readily accessible for potential developers or users of the land, the records could provide adequate notice to satisfy human health and safety concerns on an immediate basis.

Monitoring activities and site conditions on a regular basis can be an extremely effective institutional control as long as the monitoring program is maintained.

Notice requirements would have a high degree of effectiveness at FNOD as long as they were effectively implemented.

Implementability

USACE has personnel and contractors onsite to implement construction support (e.g., conduct safety briefings) and will have personnel onsite or contingency personnel available on-call, so implementing this land use control will require very little additional effort.


Fences and signs are relatively easy to implement. However, since fences and signs would only be needed in areas where removal actions have not been completed or started, construction support would be needed. An alternative to providing construction support is to conduct OE surface clearances in narrow lanes in which to drive fence posts. Construction permits also would be needed.

Based on the feedback obtained from meetings and questionnaire responses provided by stakeholders, proprietary controls will not be considered in this evaluation because landowners do not support these types of controls. These controls can be implemented only with the consent, cooperation, and action of the landowners.

One advantage of using zoning as an institutional control is that the local government, which is the closest level of government to the land, already implements zoning and monitors the use of the land. Another advantage of using zoning as an institutional control is that requirements are established only in the context of a high degree of public participation for decisions involving each and every parcel, as well as decisions involving an entire neighborhood.

One major weakness with local governmental institutional controls is that the zoning process is subject to political pressures that may be antithetical to environmental concerns, and the legislation easily can be changed or repealed. In addition, the Commonwealth of Virginia has no say over local zoning processes or content, nor is the Commonwealth subject to regulation by local zoning restrictions. Therefore, local governmental controls need to be used in combination with other institutional controls that may be more stable and credible than the local controls.

Viability of local governmental institutional controls can be strengthened. One way is to encourage the local government to enter into an MOA with USACE to ensure implementation and enforcement of the institutional controls. Another way is to enlist the aid of public opinion and support by getting the public involved and relying on their interest and pressure to encourage continuity of the institutional controls.



Within the city of Suffolk government, some officials have indicated willingness to enter into an agreement for implementing, enforcing, and monitoring institutional controls at FNOD. However, the City Council would have to agree to enter into agreements and the City Manager would need to sign such agreements.

At this time, regulatory permit programs do not appear to be needed to implement land use controls for FNOD OE sites. This analysis will be conducted if regulatory permits are needed at some time in the future.

The effectiveness of an advisory is limited to the understanding and willingness of individuals to observe the advisory. However, since advisories are not expensive to issue, they are a desirable tool and can reach a large audience. They are also part of any serious education program. The local health department or police office could be called upon to issue the advisory.

Statutory requirements—specifically, CERCLA’s requirement to review the protectiveness of remedial actions every 5 years—would not help ensure the effectiveness of land use controls over the short period (4 years or so) that USACE is considering here. In addition, this requirement, strictly speaking, does not apply to short-term removal actions such as those being considered here.

With regard to educational and notification programs, many organizations and avenues exist that could provide education or notice to the public about the OE hazards at FNOD. These organizations include USACE, state agencies such as VDEQ and the Virginia Department of Transportation, and several departments in the city of Suffolk. Avenues to provide notice and information include existing government programs, newspapers, and radio or television. For records systems, authority exists at the local and Federal levels for establishing a GIS-based records system.

Agency review and agreement of land use changes depends on agency desire to enter into agreements and ability to cooperate. One avenue for agency action review is already in place between VDEQ and the Virginia Department of Transportation.

An agency consultation control would use systems already in place and would impose little extra burden. This institutional control is implemented on a voluntary basis by community programs that are interested in maintaining the public health and safety.

If the Miss Utility program is used to provide notice to the public, legislation defining the program may have to be amended first.

Cost

The total costs of implementing different controls are presented below. Total costs include capital cost to implement controls, as well as operation and maintenance (O&M) costs to maintain, monitor, and enforce them. For the purpose of discussion, total costs less than \$25,000 are considered low, moderate if greater than \$25,000 and less than \$100,000, or high if greater than \$100,000. The total O&M costs were calculated for four follow-on years (i.e., assuming capital costs cover first year) and are based on present-worth of future operating costs with an interest rate of 5 percent per year. In addition, ranges are provided for the costs because EPA’s *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988) recommends providing costs that are accurate within -30 to +50 percent.

Since USACE personnel or contractors with the qualifications needed to conduct construction oversight are already onsite and familiar with the site and types of OE that could be encountered, the cost of implementing this alternative is low.

The total costs for fencing is considered high and the cost for signs is considered low. The capital cost associated with installing fence is based on the assumption that an area equivalent to twice that of the perimeter of the Main Burning Ground, which is 10,946 feet (or 2 times 5,473 feet), is fenced and 10 percent of the total linear footage is maintained or replaced per year at \$16/linear foot.

Costs for the remaining options are presented in Table 6. Additional information is provided in the LUCOP (SAIC 2001b) regarding the basis for the cost estimates.

Table 6. Summary of Alternative Land Use Control Cost Estimates

Alternative	Costs			Range		Cost Qualifier
	Capital	O&M	Total	-30%	+50%	
Engineering/Access Controls						
Construction support	\$130	\$450	\$580	\$400	\$850	L
Fences	\$175,000	\$59,000	\$234,000	\$164,000	\$350,000	H
Signage	\$875	\$12,000	\$12,875	\$9,000	\$19,000	L
Institutional Controls						
Zoning	\$14,000	\$47,000	\$61,000	\$43,000	\$92,000	M
Advisories/restrictions	\$5,000	\$17,000	\$22,000	\$15,000	\$33,000	L
Education/Notification Program						
1. Education/Notification:						
Regular mailings	\$5,000	\$17,000	\$22,000	\$15,000	\$33,000	L
Public information meetings	\$17,000	\$41,000	\$58,000	\$40,000	\$86,000	M
City/program participation	\$6,000	\$20,000	\$26,000	\$18,000	\$39,000	M
Emergency services/Miss Utility	\$6,000	\$20,000	\$26,000	\$18,000	\$39,000	M
Fact sheets	\$31,000	\$34,000	\$65,000	\$45,000	\$97,000	M
2. Administrative Activities:						
Agency review	\$2,000	\$1,500	\$3,500	\$2,500	\$5,000	L
Consultation process	\$100	\$330	\$430	\$300	\$700	L
Records	\$6,000	\$8,000	\$14,000	\$10,000	\$22,000	L
Monitoring	\$56,000	\$97,000	\$153,000	\$107,000	\$229,000	H
Notice	\$6,000	\$8,000	\$14,000	\$10,000	\$22,000	L

L – Low (total cost less than \$25,000)

M – Moderate (total cost greater than \$25,000 and less than \$100,000)

H – High (total cost greater than \$100,000)

State Acceptance

To determine state/support agency acceptance of potential land use control options, a questionnaire was distributed to all known interested persons. Two state agencies (i.e., Virginia Community College System [VCCS] and Virginia Department of Transportation) submitted informal responses to the questionnaires. Formal responses to the questionnaires must come from higher levels of management, possibly from the Attorney General's Office.

One state respondent to the questionnaire supports the use of a records system, where a notice in the planning records could be picked up during a Phase I assessment conducted in accordance with American Society for Testing and Materials (ASTM) standards. One state respondent agrees with the use of zoning and planning as an institutional control at FNOD, but cautions that local zoning regulations do not apply to state-owned property. One state respondent supports the use of advisories as a viable institutional control option.

Community Acceptance

One of the primary purposes of the draft version of this document was to solicit comments from the public on alternatives for land use controls to protect the public from ordnance and explosives at FNOD. USACE summarized all of the comments and responses as an enclosure to this document and took them into account before making a final decision on which land use controls to select.

To preliminarily assess community acceptance of potential land use control options, a questionnaire was distributed to all known interested persons.

One community respondent out of two has supported the use of local governmental services to provide information. In addition, community acceptance for educational and notification programs has been demonstrated in meetings and conversations held on the issue of notice. For records, one local landowner respondent noted that it preferred the use of locally available records systems.

Both of the community respondents agree with use of zoning controls as an institutional control at the FNOD. Further, some officials within the city of Suffolk government have indicated willingness to enter into an agreement for implementing, enforcing, and monitoring institutional controls at FNOD. However, the City Council would have to enter into agreements and the City Manager would need to sign such agreements. One of the respondents does not necessarily believe that an agreement is required to enforce the controls.

The consultation option depends on community interaction to be effective. Some forms of governmental or agency consultation would have high community acceptance.

PREFERRED ALTERNATIVE

USACE is proposing the following as the preferred alternative for land use controls for ordnance and explosives at FNOD while OE removal actions proceed (Table 7). USACE will be responsible for implementing, maintaining, and monitoring interim land use controls for ordnance and explosives at FNOD. Table 8 summarizes the preferred alternatives by FNOD site.

Table 9 provides an overview of the roles and responsibilities that are intended be included in the agreements for groups of land use controls with similar or related characteristics. These roles and responsibilities have been discussed preliminarily, but have not been formalized.

Table 7. Summary of Preferred Alternatives for Land Use Controls

Control	Conditions of Applicability
Engineering and Access Controls	
Construction support	Where risk is presumed
Fences	Where risk dictates
Signage	Anywhere work is ongoing or has not started
Institutional (Governmental) Controls	
Zoning and planning	Where land use should be specifically controlled
Advisories/restrictions	All of FNOD (special notice to known OE sites)
Educational and Notification Programs	
Regular mailings	All FNOD and surrounding community
Public information meetings	All FNOD and surrounding community
City/program participation	All FNOD and surrounding community
Emergency services/Miss Utility support	All FNOD (special notice to known OE sites)
Fact sheets	All FNOD (special notice to known OE sites)
Administrative Activities	
Agency review and agreement of land use changes	Where land use should be specifically controlled.
Consultation process	All FNOD (special notice to known OE sites)
Records	All FNOD (special notice to known OE sites)
Monitoring	All FNOD (special notice to known OE sites)
Notice	All FNOD (special notice to known OE sites)

Table 8. Summary of Preferred Alternatives by Site

Site	Recommendations
Believe Removal Action Is Required <ul style="list-style-type: none"> Area J Lake and Possible Burning Ground Horseshoe Pond Area TNT Disposal Area 	<ul style="list-style-type: none"> Proceed with planned removals Maintain existing fences and signs Monitor for zoning variance applications or other potential changes to land use Review permits and provide OE oversight support for construction activities, where applicable Impose advisories and restrictions to minimize incompatible land usages Continue ongoing educational programs
Removal Action Is Ongoing <ul style="list-style-type: none"> Main Burning Ground Dominion Lands (Phase II) 	<ul style="list-style-type: none"> Continue ongoing removals Secure work areas by using fences and signs Review construction permits and provide OE oversight support for construction activities, where applicable Impose advisories and restrictions to minimize incompatible land usages Continue ongoing educational programs
Removal Action Completed <ul style="list-style-type: none"> Dominion Lands (Phase I) James River Beachfront Nansemond River Beachfront Former Building E-410 Former Buildings L-11/L-12 	<ul style="list-style-type: none"> Monitor zoning for variance applications or other potential changes Review construction permits and provide OE oversight support for construction activities, where applicable Impose advisories and restrictions to minimize incompatible land usages Continue ongoing educational programs

Table 9. FNOD Land Use Control Roles and Responsibilities Matrix

Control	USACE	EPA	VDEQ	City of Suffolk	Property Owner
Fences and signs	<ul style="list-style-type: none"> Conduct and report inspections to EPA, VDEQ, and RAB Report incursions and damage to EPA, VDEQ, and RAB 	<ul style="list-style-type: none"> Review USACE report 	<ul style="list-style-type: none"> Review USACE report 	<ul style="list-style-type: none"> If charged, arrest and prosecute trespassers Notify USACE of known incursions 	<ul style="list-style-type: none"> Notify authorities of trespassers Notify USACE of known incursions and damage
Construction support	<ul style="list-style-type: none"> Provide support on property where clearance has not started or is ongoing Report requests for support and OE discoveries to EPA, VDEQ, and RAB 	<ul style="list-style-type: none"> Review USACE report 	<ul style="list-style-type: none"> Review USACE report 	<ul style="list-style-type: none"> Notify land owner where construction support is required Request construction support for appropriate properties 	<ul style="list-style-type: none"> Request construction support where appropriate
Permits	<ul style="list-style-type: none"> Review and provide comments on permit applications (e.g., new construction, variances, etc.) Provide required support if permit is approved 	<ul style="list-style-type: none"> Review and provide comments on permit, variance, etc. applications 	<ul style="list-style-type: none"> Review and provide comments on permit, variance, etc. applications 	<ul style="list-style-type: none"> Where applicable, notify land owner of potential presence of OE and request USACE, EPA, and VDEQ review of application Request construction support for appropriate properties 	<ul style="list-style-type: none"> Follow the city of Suffolk permit application process (private property owners only)
Zoning	<ul style="list-style-type: none"> Review and provide comments on proposals of zoning changes Provide required support if zoning changes are approved 	<ul style="list-style-type: none"> Review and provide comments on proposals of zoning changes 	<ul style="list-style-type: none"> Review and provide comments on proposals of zoning changes 	<ul style="list-style-type: none"> Notify USACE of proposed changes 	<ul style="list-style-type: none"> Follow the City of Suffolk permit application process (private property owners only)
Advisories	<ul style="list-style-type: none"> Provide materials and information to public events scheduled by city of Suffolk (e.g., pamphlets, GIS information, deed language) Maintain OE removal history and status in GIS and provide to city of Suffolk 	<ul style="list-style-type: none"> Review and comment on USACE materials 	<ul style="list-style-type: none"> Review and comment on USACE materials 	<ul style="list-style-type: none"> Distribute materials provided by USACE to land owners during real estate transactions and permit approvals Update OE removal status from USACE GIS Provide notice to existing land owners and real estate representatives 	<ul style="list-style-type: none"> Adhere to the advisories provided by USACE Voluntarily record advisories in property deeds
Education and notification	<ul style="list-style-type: none"> Conduct regular information mailings and meetings Participate in Miss Utility Program Upon request, provide individual land owners full disclosure of status of OE removals on their property 	<ul style="list-style-type: none"> Review and comment on USACE materials Participate in public meetings 	<ul style="list-style-type: none"> Review and comment on USACE materials Participate in public meetings 	<ul style="list-style-type: none"> Distribute educational materials provided by USACE concerning potential OE hazards Participate in public meetings Notify USACE of OE encounters through 911 calls 	<ul style="list-style-type: none"> Participate in public meetings and remain knowledgeable about OE status of their property Notify all tenants and occupants of OE status of property

Based on information currently available, USACE believes the preferred alternatives will contribute to meeting the criteria of overall protection of human health and the environment and compliance with ARARs when used in each removal action. The preferred alternatives provide the best balance of tradeoffs among possible land use controls with respect to the balancing and modifying criteria. USACE expects the preferred alternatives to satisfy the following statutory requirements of CERCLA Section 121(b) when used in each removal action: (1) be protective of human health and the environment; (2) comply with ARARs (or justify a waiver); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element, or explain why the preference for treatment will not be met.

COMMUNITY PARTICIPATION

Public Comment Period—USACE-Norfolk solicited input from the community on all of the alternatives that were proposed for the site. The comment period extended from March 7, 2002 through April 15, 2002. The comment period included a public meeting on March 7, 2002, at which time USACE-Norfolk discussed the Draft Interim LUCIP and accepted both oral and written comments. A summary of all of the comments and responses is included as an enclosure to this document.

Public Meeting
March 7, 2002
Manning Building – Tidewater
Community College, Portsmouth
Campus
6:00-7:00 pm Open House
7:00-9:00 pm Formal Presentations and
Question and Answer Period

Copies can be obtained by contacting Kenneth W. Hafner at (757) 441-7673 or the document can be viewed online or downloaded from the following Internet address:

<http://www.nao.usace.army.mil/Projects/Nansemond/welcome.html>.

Written comments were accepted by the following representatives:

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ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
BGS	Below Ground Surface
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CP	Commerce Park (zoning)
DOD	U.S. Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosives Ordnance Disposal
EPA	U.S. Environmental Protection Agency
FNOD	Former Nansmond Ordnance Depot
FUDS	Formerly Used Defense Site
GE	General Electric
GIS	Geographic Information System
LLC	Limited Liability Corporation
LUCAP	Land Use Control Assurance Plan
LUCIP	Land Use Control Implementation Plan
LUCOP	Land Use Control Options Paper
M-1	Light Industrial (zoning)
M-2	Heavy Industrial (zoning)
MOA	Memorandum of Agreement
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OE	Ordnance and Explosives
OERIA	Ordnance and Explosives Risk Impact Analysis
O-I	Office/Institutional (zoning)
PRP	Potentially Responsible Party
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
TCC	Tidewater Community College
TNT	Trinitrotoluene
USACE-Norfolk	U.S. Army Corps of Engineers-Norfolk District
UXO	Unexploded Ordnance
VCCS	Virginia Community College System
VDEQ	Virginia Department of Environmental Quality

ENCLOSURES

RESPONSIVENESS SUMMARY FOR PUBLIC AND STAKEHOLDER REVIEW OF FNOD LAND USE CONTROL IMPLEMENTATION PLAN (LUCIP) AND SUPPORTING DOCUMENTATION

Commentor: Thomas A. O’Grady, City of Suffolk, Virginia, Director of Department of Economic Development, 4/24/02 (Draft)
Document: Specific Comments on LUCIP

1. Map page 4: See attached copy with suggested changes to Zoning districts, again we suggest distinctly showing the FNOD [Former Nansemond Ordnance Depot] boundary, north arrow, Nansemond River, I-664, etc.
Response: Attached copy was not provided, but the following revisions were made to the conceptual site model (CSM) and zoning map: FNOD boundary was darkened, legend for boundary was added, north-arrow was added, Nansemond and James Rivers were annotated, “Transportation Corridor” was deleted from legend, and I-664 was specifically identified.
2. Map page 9: A portion of the Continental Bridgeway Property shown as a kick out area has been evaluated for removal actions, disturbed with a building and parking lot. Would this remain on the map?
Response: Agree. Work status symbol was changed from “O” (i.e., ongoing) to “+” (i.e., complete) at both properties designated as Dominion Lands. In addition, the north/south dividing line was removed from the property designated as “Dominion Lands Phase I.”
3. Table 9:
Comment: Fences and signs: “Prosecute trespassers” Is this already in place? Jurisdiction on TCC property?
Response: Agree that prosecution of trespassers is an existing responsibility, but the table is not limited to assigning new roles and responsibilities. Instead, it is intended to clarify, primarily to members of the general public, who is responsible for performing different functions related to implementing, monitoring, maintaining, and enforcing land use controls (LUCs) at FNOD ordnance and explosives (OE) sites.
Comment: Advisories: Reword last bullet to read “Provide notice to existing land owners and real estate representatives”
Response: Agree. Change has been made.
Comment: Education and Notification: Would it be possible to establish another number to call for emergencies?
Response: USACE believes that it is important for individual citizens to have a single, easy-to-remember telephone number to call (i.e., 911) to report the presence of potential OE. However, the reviewer may not be aware of the fact that USACE has provided the city of Suffolk Emergency Services with several alternative local explosives ordnance disposal (EOD) units to address the OE.

Commentor: Eric J. Salopek, Virginia Department of Environmental Quality – Office of Remediation Programs, 2/21/02

Document: Specific Comments on LUCIP

1. Summary of Site Risks, 3rd ¶, page 14: The draft LUCIP stated "...Engineering Evaluations/Cost Analysis..." Please correct the spelling in this sentence.
Response: Agree. Change has been made.
2. Summary of Site Risks, 4th ¶, page 14: Please adjust the sentences within this paragraph to reflect one narrative.
Response: No change was made because USACE believes that the referenced section reflects a single narrative.
3. Education/Notification Programs, 2nd Bullet, page 23: The draft LUCIP stated "...Miss Utility to warn excavators of potential presence of OE)." Has Miss Utility been approached about this proposed component of their involvement?
Response: Representatives from the Miss Utility program have been contacted several times and indicated that this approach has merit. The Virginia Utility Protection Services currently is working to expand their system to serve as an additional layer of protection as a notification system to those who may conduct ground excavations within the original FNOD footprint.
4. Monitoring, 1st ¶, page 23: The draft LUCIP stated "A monitoring program could be established by the City of Suffolk, VDEQ..." The VDEQ does not currently have the capacity to conduct such a monitoring/tracking program.
Response: The intent is to include VDEQ in the review of the results of monitoring that will be conducted or sponsored by USACE. As a reminder, the primary focus of the LUCs included in this Final Interim LUCIP is the next 3 to 5 years, during which USACE assumes VDEQ will continue their regulatory oversight involvement of OE removals.
5. Notice, 3rd ¶, page 24: The draft LUCIP stated "...Virginia has the Miss Utility program in place to inform persons who will conduct excavation activities...notice of potential contamination, information about how to protect employees while conducting excavation activities, what to do if ordnance is encountered..." While the current projection/theory is that Miss Utility may at some point function in this amended capacity, to address O/E and/or UXO issues, has the utility provided a definitive statement of agreement to this proposal?
Response: Representatives from the Miss Utility program have been contacted several times and indicated that this approach has merit. The Virginia Utility Protection Services currently is working to expand their system to serve as an additional layer of protection as a notification system to those who may conduct ground excavations within the original FNOD footprint.

Commentor: Eric J. Salopek, Virginia Department of Environmental Quality - Office of Remediation Programs, 2/21/02

Document: Specific Comments on LUCAP

1. Section 1.2.3, 1st bullet, page 1-3: The draft LUCAP stated "Publish a notification pamphlet and distribute regularly..." Please consider the following revised sentence. *Publish an updated notification pamphlet and distribute regularly...*

Response: Agree. Change has been made.

2. Section 1.2.3, 5th bullet, page 1-3: The draft LUCAP stated "...Miss Utility to warn excavators of potential presence of OE)." As stated in the LUCIP, has Miss Utility been approached about this proposed component of their involvement? As I understand, should Miss Utility agree to all stated LUCIP and LUCAP components, wouldn't that entail some form of an amendment via the State Corporation Commission to approve? If the answer is yes, would this amended Miss Utility service be available within a 1 – 2 year timeframe for implementation?

Response: Representatives from the Miss Utility program have been contacted several times and indicated that this approach has merit. The Virginia Utility Protection Services currently is working to expand their system to serve as an additional layer of protection as a notification system to those who may conduct ground excavations within the original FNOD footprint. The timeframe for deploying the new system is not currently known.

3. Section 4.1, 2nd ¶, page 4-1: The draft LUCAP stated "Reports will be for the preceding calendar year and are due to EPA, VDEQ, and other stakeholders not later than March 30th of the following year." Are the LUCs intended to be open-ended, or reviewed within a fixed window (i.e. every five years)?

Response: The specific cycle of review will be based on the nature of the hazard, the extent of characterization and removal, and the agreements made between USACE and the applicable landowner. Therefore, this information is not included in the LUCAP. However, USACE believes that the reviews will be conducted on a routine cycle, depending on the characteristics listed above.

Commentor: Eric J. Salopek, Virginia Department of Environmental Quality - Office of Remediation Programs, 2/21/02

Document: Specific Comments on LUCOP

1. Section 7.5.5, 2nd ¶, page 7-11: The draft LUCOP stated that "...VDEQ, or another interested party could establish a monitoring program to ensure that the land is not disturbed or any construction is performed..." Would the generation/implementation of the referenced records system be a component of this monitoring program? Additionally, the VDEQ does not currently have the capacity to track/respond to inquiries relating to institutional controls, intrusive activity, UXO/OE issues/concerns. However, this office may be able to assist USACE personnel, in response to targeted inquiries of VDEQ Federal Facilities Restoration remedial/removal process reviews.

Response: The intent is to include VDEQ in reviewing the results of monitoring that will be conducted or sponsored by USACE. VDEQ's role currently is envisioned as a component of the regulatory oversight involvement of OE removals, which will be addressed in the next 3 to 5 years.

2. Section 7.5.6, 3rd ¶, page 7-12: The draft LUCOP stated that “...legislation for Miss Utility may have to be amended to authorize the government to provide this notice.” What if the Commonwealth of Virginia does not amend current/applicable Miss Utility legislation relating to notification issues?

Response: Representatives from the Miss Utility program have been contacted several times and indicated that this approach has merit. The Virginia Utility Protection Services currently is working to expand their system to serve as an additional layer of protection as a notification system to those who may conduct ground excavations within the original FNOD footprint. They have indicated that legislative changes would be required only if regulatory oversight by the State Corporation Commission is needed; no legislative changes would be needed for adapting the notification capability of the system, which is the intended course of action.

3. Section 8, 2nd ¶, page 8-1: Please delete the reference to VDEQ as a landowner at FNOD.

Response: Agree. Change has been made.

Commentor: Eric J. Salopek, Virginia Department of Environmental Quality - Office of Remediation Programs, 2/21/02

Document: Specific Comments Risk Management Strategy Report

1. Section 3.4.2, bullets 4–12, page 3-8: As stated in this section, these referenced bullets provide a conservative estimate of potential frequencies of site users. Please provide the logic/methodology which was applied to derive these conservative estimates.

Response: Agree. The following changes were made:

- **Area J Lake and Possible Burning Ground**—Less than one per day (includes one trespasser based on remoteness of site and lack of evidence to assume no people use the site)
- **Horseshoe Pond**—Less than one per day (includes one trespasser based on remoteness of site and lack of evidence to assume no people use the site)
- **TNT Removal Area**—Greater than 20 per day (includes some soccer team members, coaches, and spectators)
- **Main Burning Ground**—Approximately 20 per day (includes the members of OE response team, USACE, and other personnel conducting oversight)
- **Dominion Lands (Phase I)**—Greater than 20 per day (includes all potential building occupants)
- **Dominion Lands (Phase II)**—Approximately 20 per day (includes the members of OE response team, USACE, and other personnel conducting oversight)
- **James River Beachfront**—Less than one per day (includes one trespasser based on difficulty of site access and lack of evidence to assume no people use the site)
- **Nansemond River Beachfront**—Less than one per day (includes one trespasser based on difficulty of site access and lack of evidence to assume no people use the site).

Commentor: Frank A. Fritz, III, U.S. Environmental Protection Agency, Office of Regional Counsel, 2/21/02
Document: General

1. *Engineering Evaluation/Cost Analysis*

Comment: It appears to me that this document is, in essence, a summary of an Engineering Evaluation/Cost Analysis (EE/CA). It is designed to inform the public about the need for a removal action, identify and compare various alternatives for the removal action and recommend a preferred alternative. I expect that the final decision will be documented in an Action Memorandum.

Accordingly, please change the title of the document to something like "Summary of Engineering Evaluation/Cost Analysis." Change "this LUCIP" to "this Summary" or "this document" or something similar. Similarly, I suggest changing the title of the LUCOP to "Engineering Evaluation/Cost Analysis."

We should explain to the public that the final selection of institutional controls for these sites will be documented in an Action Memorandum, and further explain that the Action Memorandum will be finalized after considering and responding to significant public comments.

Calling this an EE/CA also helps clarify the Corps' and EPA's authority to publish this document and select a removal action.

Response: Disagree. USACE does not believe that another decision document is required, and cannot propose a decision document for LUCs while DOD and EPA are in dispute over larger LUC enforcement issues.

2. *EPA and DOD Roles*

I (and folks in EPA's Federal Facilities Enforcement Office and the Federal Facilities Reuse and Reutilization Office) believe that the Department of Defense is responsible for implementing, maintaining and monitoring institutional controls for ordnance and explosives at FNOD. See Defense Environmental Restoration Act, 10 U.S.C. § 2701(c). DOD may arrange with other entities, such as land owners, tenants and governmental bodies (e.g., the City of Suffolk) to help implement, maintain and monitor institutional controls at FNOD. However, the Department of Defense remains ultimately responsible for ensuring that removal actions (including institutional controls) for ordnance and explosives at FNOD effectively protect human health and the environment.

At CERCLA sites where a financially viable responsible party is implementing (and paying the cost of) a removal action, EPA usually oversees implementation and maintenance of the removal action. EPA does not usually implement or maintain the removal action itself. The situation is different at Superfund sites where there are no financially viable potentially responsible parties (PRPs). In that case, EPA uses taxpayer dollars (the Superfund) to implement and maintain removal actions. In the case of remedial action, the states are required to pay for 90% of operation and maintenance. Here, however, the DOD is a financially viable PRP and is carrying out removal actions. Therefore, I see EPA's role as one of oversight, rather than directly implementing and maintaining the land use controls.

Sometimes, the language in the draft is not so clear about this. I've made various suggestions below.

Response: Agree. Changes have been made where appropriate to clarify the roles and responsibilities of USACE and other stakeholders.

3. “Agreement” instead of “Memorandum of Agreement”

In general, I’d like to stay away from the phrase “Memorandum of Agreement” and instead use the word “agreement.” Memoranda of Agreement often are not enforceable if parties do not abide by the agreement. This presents problems for maintaining effective institutional controls.

EPA has authority to enter into administrative orders on consent (AOCs) to implement institutional controls. These documents are both orders and agreements, and usually contain provisions for enforcing the agreement if one party fails to abide by the terms. This may be a very effective tool for implementing these institutional controls in certain cases. To leave open the possibility of using administrative orders on consent, please use the term “agreement” rather than “MOA.”

Response: Disagree. USACE prefers the term “MOA” as the standard type of agreement proposed in the LUCIP.

Commentor: Frank A. Fritz, III, U.S. Environmental Protection Agency, Office of Regional Counsel, 2/21/02

Document: Specific Comments

1. Page 1 and throughout: I’d prefer that we spell out “land use controls,” rather than write “LUC.” I think it will be easier for the public to read.

Response: Agree. Change has been made (globally, as appropriate).

2. Page 2, 1st ¶, last sentence: Please change “assumed” to “suspected.”

Response: Agree. Change has been made (globally, as appropriate).

3. Page 2, 3rd ¶: Please rewrite, something like:

The Department of Defense will be responsible for implementing, maintaining and monitoring the land use controls for ordnance and explosives at the FNOD. The Department of Defense may make arrangements with land owners, tenants, government bodies, such as the City of Suffolk or other stakeholders to help implement, maintain and monitor land use controls for ordnance and explosives at FNOD. The U.S. Environmental Protection Agency (EPA) and the Virginia Department of Environmental Quality (VDEQ) will oversee implementation, maintenance and monitoring of these land use controls and, if necessary, take enforcement actions to ensure the land use controls are properly implemented, maintained and monitored.

Response: Disagree. The following paragraph replaces the comment referenced by the reviewer.

USACE, as the executing agent for environmental restoration activities at Formerly Utilized Defense Sites (FUDS), will be responsible for implementing, maintaining, and monitoring the land use controls for OE at FNOD. USACE may make arrangements with landowners; tenants; government bodies, such as the city of Suffolk; or other stakeholders to help implement, maintain, and monitor land use controls for OE at FNOD. The U.S. Environmental Protection Agency (EPA) and the Virginia Department of Environmental Quality (VDEQ) will oversee these land use controls.

4. Page 2, 4th ¶, 3rd sentence: Please change “will enter into separate Memoranda of Agreements (MOAs)” to “may enter into agreements (Memoranda of Agreement (MOAs) or

Administrative Orders on Consent (AOCs).” Please change “maintain, monitor, and enforce” to “maintain and monitor”

Response: Disagree. USACE prefers the term “MOA” as the standard type of agreement proposed in the LUCIP. Additionally, the term “enforce” along with “maintain” and “monitor” is part of the agreement with both landowners and local governments. Landowners are expected to enforce any required restrictions upon their potential tenants, and local government is expected to enforce existing zoning and use restrictions that are adopted as part of the overall Land Use Control Implementation Plan.

5. Page 2, 4th ¶, 4th sentence: Please change beginning of sentence to “This document identifies the preferred land use control alternatives . . .”

Response: Agree. Change has been made.

6. Page 5, 1st bullet (Land Use Control Assurance Plan): In the first sentence, please change the word “establishes” to “describes.” I don’t believe the various assurances needed for implementation, monitoring and maintenance can be “established” between the Corps and the stakeholders without signatures from authorized representatives of each. We don’t have those signatures yet, so I would not say “established.” Please delete the last sentence (“In addition, this document defines the nature of regulatory oversight...”)

Response: Agree. Change has been made.

7. Page 5, Background, 1st ¶, 2nd line: Insert “of” between “dispose” and “unserviceable.”

Response: Agree. Change has been made.

8. Page 5, Background, 2nd ¶ and throughout: Please spell out “Hampton Roads Sanitation District” and “Virginia Department of Transportation,” rather than use acronyms. It will make it easier to read for the general public.

Response: Agree. Change has been made.

9. Page 6: Spell out “Formerly Used Defense Site” and “Department of Defense” before the acronyms.

Response: Agree. Change has been made.

10. Page 6, 2nd full ¶, next to last sentence: Please replace “Primary Responsible Party” with “Potentially Responsible Party.”

Response: Agree. Change has been made.

11. Page 7 and throughout: Please spell out “Conceptual Site Model” in place of “CSM.”

Response: Agree. Change has been made.

12. Page 8, 1st bullet, 2d line and 2d bullet, last line: For “demilitarization,” use a simpler word or explain in plain English. For “demilitarized,” use a simpler word or explain in plain English.

Response: Agree. Text was added to explain that the term “demilitarization” means, “making ordnance safe.”

13. Page 8, 3rd bullet, 3rd line: Please explain what “live” items are, in plain English. This use of the word “live” may not be familiar to the general public.

Response: Agree. The following parenthetical was added: “...(i.e., still containing some explosive or propellant material).”

14. Page 8, 4th bullet: “Washout operations”: explain in plain English.

Response: A sentence in the referenced bullet was expanded as follows: “Washout operations involved the use of steam cleaners or high-pressure washers to salvage ordnance parts from disassembled munitions or clean out rail cars that were caked with explosives residuum from transporting bulk explosives.”

15. Page 9, 1st full ¶, 1st sentence: Please rewrite the last phrase as “and no further response for ordnance and explosives was determined to be necessary.” I’m not sure whether EPA may determine that a further response may be necessary for ground water or soil contamination, and I don’t want to inadvertently rule it out here.
Response: Agree. Change has been made.
16. Page 9, 1st full ¶, 2nd sentence: Please explain “intrusive investigations” and “anomalies” in plain English.
Response: Agree. The following text was added to define the terms “intrusive investigation of anomalies”: “(i.e., excavation of soil to expose potentially explosive items).”
17. Page 10, Table 3: Please spell out “Hampton Roads Sanitation District” and “Virginia Department of Transportation,” rather than use acronyms.
Response: Agree. Change has been made (globally, as appropriate).
18. Page 11: Please rewrite title as “Scope and Role of Removal Action.”
Response: Disagree. The title was changed to “Scope and Role of Land Use Control Implementation Plan.”
19. Page 11, 1st ¶, 2nd sentence: Please replace “remaining hazardous, toxicological, and radiological waste (HTRW) and potential residual OE” with “hazardous substances, pollutants and contaminants.”
Response: Agree. Change has been made (globally, as appropriate).
20. Page 11, 1st ¶, 2nd sentence: Please replace “FNOD Action Memo (USACE 1999)” with “Interagency Agreement to Perform a Time Critical Removal Action for Ordnance and Explosive Safety Hazards (1999).”
Response: Agree. Change has been made (globally, as appropriate).
21. Page 12, 2nd ¶, 3d sentence: “Receptor”: use a simpler word (e.g., “human”) or explain in plain English.
Response: Agree. The term “receptor” has been replaced with the term “human.”
22. Page 12, 3rd ¶, 1st sentence: Change “Anlyses” to “Analyses.”
Response: Agree. Change has been made.
23. Page 12, 3rd ¶, last sentence: Because I believe this document appears to be an EE/CA, or a summary of an EE/CA, I don’t believe it makes sense to say “the risk assessment in this document is not part of an EE/CA.” You might delete this sentence entirely or simply write “OERIA can be used as the model for this assessment.”
Response: Agree to delete sentence.
24. Summary of Site Risks: Please explain, in plain English, the following terms:
- “type” of OE and “category 0”, “category 3”
 - “sensitivity” of OE and “category 0”, “category 3”
 - “density” of OE
 - “depth” of OE
 - “accessibility”—“limited”, “no restrictions”
 - “Stability”
 - “activities”—“significant”, “moderate”
 - “population”—“<1/day”, “>20/day”
- I realize that you explain in a footnote about category 0 and category 3 as they apply to “type” and “sensitivity,” but I think the text and tables would be much easier to understand if you explained in the text, in plain English, what you meant by “type” of OE and “sensitivity” of OE.

You did a very good job of explaining the various proprietary land use controls in plain English. Explanations at about the same reading level would be useful for the above terms.

Response: Agree. These terms are defined in the footnotes of Table 4.

25. Page 14, Table 4: Please add a footnote explaining that “BGS” means “below ground surface.” I realize that you already defined “bgs” in the glossary, but it would make the document easier to read if you added a footnote, too.

Response: Agree. The term is defined as “below ground surface” in footnote “d” in Table 4.

26. Page 16: Please add a plain English explanation of “construction support” here. You do it later in the document, but it is important here, when you use the term for the first time.

Response: Agree. The following definition was included for construction support: “Construction support is providing assistance in avoiding OE risks in areas where a clearance has not been started or has not been completed.”

Comment: Please delete “installing landfill caps, constructing slurry walls, installing sheet pile/vertical caps, installing soil covers” from the list here. They don’t apply to our situation here. Please delete the last paragraph of Engineering and Access Controls, too, which explains that these things don’t apply here.

Response: Agree. The text describing engineering controls is now limited to construction support, fences, and signs.

27. Page 17, 2nd ¶, 1st sentence: Please add “Typically,” before “The only person” and change capitalization accordingly.

Response: Agree. Change has been made.

28. Page 17: I suggest deleting “Easement Appurtenant” and “Reversionary Interest” here, and any references later, because these devices are not applicable to our situation here.

Response: Agree. Change has been made.

29. Page 18, Zoning and Planning, 1st ¶, last sentence: Is it true that state and federal agencies are not subject to zoning ordinances? I’d be surprised if a federal agency could build an office complex in my neighborhood, which is zoned solely for residential uses. It may be accurate to say that federally owned or state-owned land is not subject to local zoning, but that is not what you are saying here. I’d change the last phrase to “, nor is state-owned or federally owned land subject to local zoning ordinances.” I’d also add “Much of the property at the FNOD is currently state-owned.”

Response: Agree. The following text replaces the referenced sentence, “There is no Federal involvement in zoning, nor is state-owned or federally owned land subject to local zoning ordinances. Much of the property at FNOD is currently state-owned.”

30. Page 19, Regulatory Permit Programs: Please delete “a state/federal Resource Conservation and Recovery Act (RCRA) corrective action or post-closure permit.” I don’t believe such a permit is relevant to our situation here, and would only to confuse readers.

Response: Agree. Change has been made.

31. Page 20, Monitoring: Please add sentences that state:

- The Department of Defense will establish a system for monitoring the effectiveness of the institutional controls. The Department of Defense may arrange with other entities, such as the City of Suffolk or land owners, to monitor the institutional controls. However, the Defense Department remains ultimately responsible for

ensuring that the land use controls for ordnance and explosives protect human health and the environment.

- The Department of Defense and land owners will provide annual reports on whether the institutional controls remain effective in protecting human health and the environment.
- The EPA and VDEQ will oversee the efforts of the Department of Defense and others to monitor the effectiveness of the institutional controls.

Replace the word “MOA” with “agreement.” This broader term can include Administrative Orders on Consent that EPA may enter into with potentially responsible parties to implement, maintain and monitor institutional controls.

Response: Disagree. Until the dispute between EPA and DOD is resolved, this language cannot be placed in DOD documents.

32. Page 21, Evaluation of Alternatives, 1st ¶, 1st & 2nd sentence: Please rewrite, something like:

Response alternatives will be evaluated in this document against nine criteria: overall protection of human health and the environment... [continue as currently written]

Strictly speaking, CERCLA, through the NCP, requires evaluation of the nine criteria for remedial actions, but not removal actions. As a matter of policy, EPA (and I guess the Corps) use the nine criteria to evaluate non-time critical removal action alternatives. The way it's written here, it implies that CERCLA requires this analysis for removal actions. That's not quite right.

Response: Agree. Change has been made.

33. Page 21, 2d ¶, 1st sentence: Please rewrite the last part as “are short-term effectiveness, implementation, cost and state and community acceptance.” The draft text minimizes the importance of state and community acceptance, which is not appropriate.

Response: Agree. Change has been made.

34. Page 22, 6th full ¶ (Statutory Requirements): This paragraph is confusing to me. What does it mean that “at this time, statutory requirements do not appear to impact LUCs...”?

Could you rewrite in more concrete terms? Exactly what statutory requirement are you speaking about? Why doesn't it affect the LUCs?

Are you trying to say something like: “Statutory requirements—specifically the Comprehensive Environmental Response Compensation and Liability Act's requirement to review the protectiveness of remedial actions every five years—would not help ensure the effectiveness of institutional controls over the short time period (four years or so) that the Department of Defense is considering here. In addition, this requirement, strictly speaking, does not apply to short-term removal actions such as those being considered here.”

Response: Agree. Change has been made.

35. Page 22, 8th full ¶, 1st line: Change “associate” to “associated.”

Response: Agree. Change has been made.

36. Page 23, 1st ¶, 1st line: Change “construct” to “construction.”

Response: Agree. Change has been made.

37. Page 23, 4th ¶, 2nd line: Delete “since it.”

Response: Agree. Change has been made.

38. Page 24, 1st ¶: This is the same comment as p22, 6th para:

Could you rewrite in more concrete terms? Exactly what statutory requirement are you speaking about? Why doesn't it affect the LUCs?

Are you trying to say something like: "Statutory requirements—specifically the Comprehensive Environmental Response Compensation and Liability Act's requirement to review the protectiveness of remedial actions every five years—would not help ensure the effectiveness of institutional controls over the short time period (four years or so) that the Department of Defense is considering here. In addition, this requirement, strictly speaking, does not apply to short-term removal actions such as those being considered here."

Response: Agree. Change has been made.

39. Page 25, Community Acceptance: Please start this section with something like: One of the primary purposes of this document is to solicit comments from the public on alternatives for land use controls to protect the public from ordnance and explosives at FNOD. DOD, EPA and VDEQ will respond to significant public comments and take them into account before making a final decision on which land use controls to select. DOD, EPA and VDEQ encourage the public to comment on the plan outlined in this document. Then continue with the rest

Response: Agree. Change has been made.

40. Page 26, carryover ¶: As I asked at the beginning, please replace "MOA" with "agreement" here and throughout the document.

Response: Disagree. Until the dispute between EPA and DOD is resolved, this language cannot be placed in DOD documents.

41. Page 26, next to last ¶, 2nd line: Change "LUCIP" to "document" or "Summary."

Response: Disagree. USACE believes the title is appropriate.

42. Page 26, Preferred Alternative: After reading this page, I'm not sure what the preferred alternative is. Much of the language in the section appears to be analyzing various alternatives, or explaining how analysis was done. I'd like you to go directly to the point. Describe as directly and simply as you can the controls that we're recommending.

One suggestion is to edit Table 7 so that only the applicable controls are listed, and the inapplicable controls are deleted. I imagine a chart which has only two columns: one to describe the control (e.g., signs) and one to describe the conditions under which that control would be used (e.g., anywhere work is on going or has not started). Then add some introductory text, which would be the first words of the Preferred Alternative section:

DOD, EPA and VDEQ are proposing the following as the preferred alternative for land use controls for explosives and ordnance at FNOD while OE removal actions proceed: [revised Table 7]

You could then follow this with a brief explanation that Table 8 describes particular areas at FNOD where particular controls are recommended. Table 8 would then follow.

The text on page 26 and Table 7 (as it stands, without editing) seem to be analyzing various alternatives. I think this would fit better in the previous section, in which the various alternatives are analyzed. It does not seem to fit so well here, where we should be describing, as clearly and as simply as possible, which land use controls we prefer for which areas.

Response: Agree. This section was significantly revised to focus the presentation of the preferred alternative. The revisions were so extensive that it is impractical to repeat them in this responsiveness summary. Please refer to page 24 to see actual revisions.

43. Page 28, 2nd ¶, 1st sentence: Please rewrite, something like:

The Department of Defense will be responsible for implementing, maintaining and monitoring the land use controls for ordnance and explosives at the FNOD. Therefore, the Department of Defense must ensure that land use controls are maintained for the time that risk of exposure to OE remains at FNOD. EPA and VDEQ will oversee implementation, maintenance and monitoring of these land use controls and, if necessary, take enforcement action to ensure the land use controls are properly implemented, maintained and monitored. [continue with “Unfortunately, neither USACE or EPA . . .” as in the draft to the end of the paragraph. However, change “MOA” to “agreement.”]

Response: In response to changes needed based on the previous comment, this paragraph was deleted.

44. Page 30: Delete the word “threshold.”

You haven’t explained what threshold, balancing and modifying criteria are. Don’t use these words. Just say something like “provides the best balance of features when measured against the nine criteria.”

Section 121 of CERCLA applies only to remedial actions. This is a removal action. Delete the language about Section 121(b). You don’t need to make these findings for a removal action.

Note removal actions shall attain ARARs “to the extent practicable, considering the exigencies of the situation.” 40 C.F.R. § 300.415(j). Attaining ARARs is not an absolute requirement for removals, as it is for remedial actions.

Response: Agree. Change has been made.

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), 2/1/02
Document: Land Use Control Options Paper

1. Page 2-1, table 2-1: Shouldn’t Continental/Bridgeway One Associates be included as a landowner?

Response: Agree. The latest version of the document includes Continental Bridgeway One Associates, Limited Liability Corporation.

2. Page 2-2, table 2-2: Delete Dominion Land (Phases I and II)

Response: Agree. Change has been made.

3. Page 2-2, table 2-2: Why is the James River Beachfront Offshore Area listed? This wasn’t identified as an AOC before, what changed?

Response: The James River Beachfront Offshore Area will be omitted from this document and other related documents.

4. Page 3-1, paragraph 3.2 (2): Further define what is meant by “inappropriate subsurface excavation”.

Response: The second item listed in Section 3.2 has been re-written as follows: “Prohibit subsurface excavation in areas where OE removals are planned, ongoing, or complete without first obtaining construction permits, if applicable, and notifying USACE.”

5. Page 3-2, first paragraph: This paragraph suggests restrictions on disturbing the soil or conducting excavation activities. It does not suggest who should be contacted in the event of any excavations, nor does it take in to account the owners right to perform some excavation as needed (utility line breaks/repairs, sign installation, irrigation repairs, etc.).
Response: This section is intended to describe the goals, objectives, and strategies of land use controls in general at FNOD so that specific procedures, such as who to contact, can be discussed more meaningfully later in the document. Regarding the “right to perform some excavation,” the second sentence has been re-written as follows: “To ensure that public health is protected, USACE, either directly or through agreements with the city of Suffolk, will provide notice about potential hazards that may be encountered while disturbing the surface of the land or conducting excavation activities.”
6. Page 7-1, paragraph 7.1: The interpretation is that this document only deals with land use control’s with regards to ordnance removals that are in progress. Is this correct or was this also meant to address future land use controls?
Response: This document and others in the group (i.e., LUCAP, Risk Management Strategy Report, and LUCIP) are specifically intended to address the period of time while OE removal actions are ongoing at FNOD, which is assumed to be the next 5 years. However, it is assumed that some controls will be needed in the future. These needs, as well as the potential need to extend related agreements, will be evaluated after all planned OE removal actions are complete.
7. Page 7-4, paragraph 7.2.2, “Existence of Authority to Implement Control”: States landowners can install fences without special authorization except for obtaining a construction permit. State agencies do not have to submit requests to local agencies for building permits nor are they required to submit a request to the Bureau of Capital Outlay Management in Richmond.
Response: Agree. In light of this circumstance and the fact that the state owns property at FNOD, we hope to include an agreement to notify USACE prior to conducting excavation activities in areas where OE removals are planned, ongoing, or complete in the memoranda of agreement (MOAs) with state agencies.
8. Page 7-6, “State Acceptance”: Who is the State respondent? If this is meant to be several State agencies (VDOT, VCCS, VDEQ, TCC, etc.) than change to reflect “State Respondents”. Note: this comment applies for all documents.
Response: Agree. The text has been clarified to state that two state agencies (VCCS and VDOT) submitted informal responses to the questionnaires and that formal responses to the questionnaires must come from higher levels of management, possibly from the State Attorney General’s Office.

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), 2/1/02
Document: Land Use Control Assurance Plan

1. Table 2-2: Delete Dominion Land (Phases I and II)
Response: Agree.

2. Table 2-2: Why is the James River Beachfront Offshore Area listed? This wasn't identified as an AOC before, what changed?

Response: The James River Beachfront Offshore Area will be deleted from this document and other related documents.

3. Chapter 3: Is this chapter meant to explain the use of land use controls before, during, or after the cleanup of FNOD? The way the chapter is written, it tends to waiver.

Response: This document and others in the group (i.e., LUCAP, LUCOP, and LUCIP) are specifically intended to address the period of time while OE removal actions are ongoing at FNOD, which is assumed to be the next 5 years. However, it is assumed that some controls will be needed in the future. These needs, as well as the potential need to extend related agreements, will be evaluated after all planned OE removal actions are complete.

4. Table 5-1: Will need to include state procedures for construction projects.

Response: Agree. In light of the procedures for state agencies to obtain authorization to conduct excavation and the fact that the state owns property at FNOD, we hope to include an agreement to notify USACE prior to conducting excavation activities in areas where OE removals are planned, ongoing, or complete in the memoranda of agreement (MOAs) with state agencies.

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), 2/1/02
Document: Land Use Control Implementation Plan

1. Executive Summary, page 1, paragraph 2: Again makes reference to the James River Beachfront Offshore Area. Why? This was not identified as an AOC nor was it a concern during other cleanup operations. Why is it now being addressed?

Response: The James River Beachfront Offshore Area will be omitted from this document and other related documents.

2. Page 29, table 9 "FNOD Land Use Control Roles and Responsibilities": Under permits, the state does not follow the city of Suffolk's application permit process. Any activity on state property is either coordinated with the Bureau of Capital Outlay Management (depending upon the scope of the project) or the local Facilities Management department.

Response: Agree. In light of the procedures for state agencies to obtain authorization to conduct excavation and the fact that the state owns property at FNOD, we hope to include an agreement to notify USACE prior to conducting excavation activities in areas where OE removals are planned, ongoing, or complete in the memoranda of agreement (MOAs) with state agencies.

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), provided verbally 8/1/02
Document: Land Use Control Implementation Plan

1. Page 18, Agency Review and Agreement of Land Use Changes. Change "VDEQ would have veto power over..." to "VDEQ would review and provide formal comment on..."

Response: Agree. Although VDEQ could enter into agreement where veto power was part

of the agreement, agreements requiring veto power for VDEQ were not planned for this site. Change has been made.

2. Page 26, Table 7, under Agency Reviews and Agreement of Land Use Changes. Change applicability from "All FNOD (special notice to known OE sites)" to "Where land use should be specifically controlled."

Response: Agree. Agency review and agreement for land use changes where land use is not being specifically restricted is not appropriate. Change has been made

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), 2/1/02
Document: Risk Management Strategy Report

1. Page 2-12, table 2-6: Delete Dominion Land (Phases I and II). Update charts.
Response: Agree. Change has been made
2. Page 3-8, paragraph 3.4.2, first bullet: Change to read "Faculty, staff, students, and visitors to Tidewater Community College."
Response: Agree. Change has been made
3. Page 4-2, paragraph 4-4, table 4-1: Add "where applicable" to any reference to reviewing permits since state agencies do not use local procedures for permits.
Response: Agree. Change has been made.

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), 2/1/02
Document: Model Memorandum Of Agreement

1. Typo in last line, 1st para. p. 1 – "... similar land used controls ...".
Response: Agree. This change was incorporated into the latest version of the document.
2. We will need to get the Attorney General's office to review this Draft Memorandum of Agreement.
Response: We appreciate your assistance in identifying the review requirements for the Tidewater Community College property.

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), 2/1/02
Document: 9 January 2002 Powerpoint Briefing

1. Responsibility Matrix - "Permits" and "Zoning" -- Public property owners do not follow the Suffolk permit application process or zoning process. Must come up with a different system for the state agencies to monitor whether they are complying with terms of the agreement.
Response: Agree. In light of the procedures for state agencies to obtain authorization to conduct excavation and the fact that the state owns property at FNOD, we hope to include an agreement to notify USACE prior to conducting excavation activities in areas where OE

removals are planned, ongoing, or complete in the memoranda of agreement (MOAs) with state agencies.

Commentor: Mr. Patrick A. Genzler, Vandeventer Black LLP (representing Virginia Community College System-Tidewater Community College), 2/1/02
Document: General Comments

1. Avoid the excessive use of acronyms. If the documents are meant to be for public use, “de-militarization” of the documents needs to be accomplished.

Response: Agree, but in light of the extensive changes required to revise the document and the limited time available, USACE eliminated some, but not all, acronyms.

Comment: For example, the “Notice of Previous Military Utilization and Potential Hazards” is difficult to understand. If this “Notice” is intended to be read and understood by the civilian community, it needs to be “de-militarized” and written on a more direct and simple level. Avoid use of acronyms. Also, the Notice doesn’t address “suspect” OE or HTW – it only tells people what to do if they find “OE.” As an example, it should say something like.

“This property was a part of a former Department of Defense facility that stored and handled ordnance, ammunition and explosives. It was called the “Former Nansemond Ordnance Depot,” sometimes abbreviated as “FNOD.” In the past, military items and debris associated with ordnance, ammunition and explosives were found at FNOD (not necessarily on this property) as shown on the attached map. From 1996 through 2002, the Environmental Protection Agency and the Army Corps of Engineers cleaned up the site using the best technology available at the time. All found items associated with ordnance, ammunition, or explosives, or any items believed to contain hazardous or toxic materials, were removed and properly disposed of, to protect human health and the environment. Other environmental cleanup was done at FNOD at the same time.

If you find an unknown object on the property that you think may be, or may have been, a piece of ordnance, ammunition or another explosive device, or that you think may contain hazardous or toxic materials, you must call the following numbers: (1) the Suffolk Police Department at xxx-xxxx, and (2) the Army Corps of Engineers office in Norfolk, at xxx-xxxx.. They will call in experts from the Defense Department to inspect and remove any suspicious material.

If you would like further information about FNOD, or what to do with suspect items found on the property, call the Army Corps of Engineers at xxx-xxxx.”

Response: The specific language included in the memoranda of agreement (MOAs) is currently under review and will be negotiated between USACE and each individual stakeholder.

2. Need to be clear and consistent with all the documents concerning their application. Are the land use controls proposed meant for existing ordnance and clean-up operations or does this include long-term monitoring after the sites are cleaned up. Need to be specific.

Response: Agree. These documents are specifically intended to address the period while OE removal actions are ongoing at FNOD, which is assumed to be the next 5 years. However, it is assumed that some controls will be needed in the future. These needs, as well as the potential need to extend related agreements, will be evaluated after all planned OE removal actions are complete.

Commentor: Mr. Rick Aiken (on behalf of Hampton Roads Sanitation District) 1/23/02
Document: All documents illustrating Hampton Roads Sanitation District boundary

1. Just met with the HRSD folks. They were concerned over their footprint on the various maps. They asked me to confirm what source Hydrogeologic used for their boundaries. Ms Heffington said she had talked with Hydrogeologic when they first produced the landowner chart because they had used a city tax map that was not consistent with the actual property lines. Additionally, there is a bubble along the Eastern boundary of FNOD on the line between HRSD property and TCC property. Do we in-fact have another property owner somewhere?

Lastly, the blue FNOD boundary on the CSM and SAIC graphics is not the same as the red FNOD boundary on our latest site map. I know we opted not to use the red boundary because it distorted the image along the shoreline and made the CSM products confusing. However, the blue line on the CSM is not correct along the southern FNOD boundary.

Response: SAIC obtained the majority of the information on property boundaries from USACE directly and an update from Hydrogeologic, who had done extensive research related to the boundaries, for the overall boundary of FNOD. The only change SAIC made was to the shoreline boundary at USACE's request. Please provide additional information if changes are required.

Commentor: Mr. Robert Thompson, U.S. Environmental Protection Agency, 1/15/02
Document: Land Use Controls Implementation Plan

1. Based upon a cursory review, I am impressed with the LUCIP. I would like to stress one major comment: The Background section should include a discussion of the NPL status of the FNOD...this will become important at the end of the LUCIP, because there is a need to stress the important of issuing proposed plans and RODs in the future to close out source areas on the NPL, such as the Burning Ground, the James River Beachfront Area, the TNT removal area, the horseshoe pond, etc. Those future proposed plans and RODs could include LUCs for ordnance and explosives if threats still exist in these areas. The LUCIP should point this out.

Response: We appreciate the positive feedback and agree with the need to discuss the relevance to NPL status. The following paragraph will be inserted between the last paragraph in "Background" and the subheading entitled "Land Use Controls" on page 6:

This document describes how LUCs will be implemented over the period of time while OE removal actions are ongoing at FNOD. The needs for long-term controls, as well as the potential need to establish long-term agreements, will be evaluated after all planned OE removal actions are complete. Meanwhile, other remedial investigations and response actions will be completed for potential hazardous substances, pollutants, and contaminants. At some time in the future, when decisions will be made about completing the response process for OE and hazardous substances, pollutants, and contaminants, USACE and EPA will begin a formal site-closeout process for FNOD.

Commentor: Mr. Russell A. Dudley, Virginia Department of Transportation, 1/9/02
Document: Land Use Controls Implementation Plan

1. In general, the LUCIP is very well written.

Response: We appreciate the positive feedback and comments provided.

2. Page 6 ¶ 2 – recommend changing “In July 1999, EPA placed FNOD on the Comprehensive ...” to “EPA placed portions of FNOD on the Comprehensive ...” This will serve to clarify that although all the landowners may own FNOD property, not all the property in question is actually a part of the NPL site (e.g. VDOT).

Response: Agree. Change has been made.

3. Page 6, under Site Characteristics – ensure “CSM” has been previously defined within the narrative of the document before consistent use of the acronym.

Response: Agree. All of the documents underwent a more extensive editorial review and all acronyms were defined prior to usage.

4. Under “State Acceptance” on Page 25 - I wasn't clear on what this is referring to. I think these may have been VDOT's comments. But that doesn't necessarily mean you have “State” (as in the Virginia State Government as a whole) acceptance or “State” comments - you only have VDOT's.

Response: Agree. The text was clarified to state that two state agencies (VCCS and VDOT) submitted informal responses to the questionnaires and that formal responses to the questionnaires must come from higher levels of management, possibly from the State Attorney General's Office.